2018 - 2019 General Catalog

Online General Catalog: https://www.utsouthwestern.edu/education/utsw-catalog/general/

Reservation of Rights

Every effort is made to ensure that the degree requirements and course information, applicable policies, and other materials contained in the UT Southwestern Medical Center Catalog are accurate and current for its three schools – UT Southwestern Medical School, UT Southwestern Graduate School of Biomedical Sciences, and UT Southwestern School of Health Professions.

UT Southwestern reserves the right to make changes at any time without prior notice. The official online Catalog is revised annually and contains currently applicable policies and information. The University no longer produces an official printed copy version of the Catalog.

It is the goal of UT Southwestern Medical Center that its campus be accessible to people with physical disabilities and free from unnecessary physical barriers. Individual requests for accommodations will be reviewed by the program to which the student applies.
UT Southwestern is a component of The University of Texas System and is subject to the Rules and Regulations of the Board of Regents of UT System.

To the extent provided by applicable law, no person shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity sponsored or conducted by The University of Texas System or any of its component institutions on the basis of race, color, national origin, religion, sex, age, veteran status or disability

Rule 10701
Rules and Regulations
UT System Board of Regents

UT Southwestern Medical Center

UT Southwestern Medical Center ranks among the top academic medical centers in the world. Its faculty members, who are responsible for a broad array of groundbreaking biomedical research advances, are respected for their dedication to teaching. UT Southwestern's physicians provide patients with the highest quality of care throughout the Medical Center's outpatient clinics and affiliated hospitals.

Mission

Values

History

Accreditation

The University of Texas Southwestern Medical Center is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award master's, doctoral (Ph.D./D.P.T.), and medical professional (M.D.) degrees.

Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of UT Southwestern Medical Center.

Normal inquiries about UT Southwestern Medical Center, such as admission requirements, financial aid, educational programs, etc., should be addressed directly to UT Southwestern Medical Center and not to the Commission's office. The Commission is to be contacted only if there is evidence that appears to support an institution's significant non-compliance with a requirement or standard.

UT Southwestern Leadership

UT Southwestern Medical Center is led by a team of accomplished physicians, scientists, educators, and administrators committed to maintaining a supportive atmosphere of healing, discovery, and learning. Led by President Daniel K. Podolsky, M.D., UT Southwestern leaders bring a wide variety of backgrounds and experiences to bear on directing one of the nation's top academic medical centers. At the same time, leadership across all levels – schools, departments, divisions, centers, clinics, and hospitals – share an ambitious mission: to push the frontiers of medicine while bringing the latest advances to patient care.

About UT System

UT System Board of Regents

The Board of Regents, the governing body for The University of Texas System, is composed of nine members who are appointed by the Governor and confirmed by the Senate. Terms for Regents are scheduled for six years each and staggered so that three members' terms will usually expire on February 1 of odd-numbered years. In addition, the Governor appoints a Student Regent for a one-year term.

Throughout the more than 100-year history of the UT System, the Board has been composed of dedicated and distinguished Texans who have been strong advocates of excellence in academic programs, scientific inquiry, and responsible public service.

UT System Leadership

The University of Texas System is one of the nation's largest systems of higher education, with 14 institutions that educate more than 230,000 students. Each year, UT institutions award more than one-third of all undergraduate degrees in Texas and almost two-thirds of all health professional degrees.

The UT System has been led by **Chancellor Larry R. Faulkner**, serving as Chancellor *ad interim* since June 1, 2018. Dr. Faulkner also is President Emeritus of The University of Texas at Austin,

where he served as the 27th president from 1998 to 2006. He also is a retired president of Houston Endowment, a private philanthropy established by Jesse H. and Mary Gibbs Jones. He oversees 14 academic institutions that employ 20,000 faculty and more than 80,000 health care professionals, researchers, and staff.

The UT System's six health institutions are under the leadership of **Dr. Raymond S. Greenberg**, the Executive Vice Chancellor for Health Affairs since 2013. He is responsible for the health institutions and their aggregate operating budget of more than $9 billion.

Student Success

Institutional Completion and Graduation Rates

In accordance with the federal Student Right-to-Know and Campus Security Act, the university publishes a report of the completion or graduation rates on its Facts and Figures webpage. UT Southwestern also publishes goals for student achievement and the success of its students in achieving those goals on its Student Achievement Goals webpage.

Student Achievement

UT Southwestern measures its students' achievements in numerous ways. Two significant areas of accomplishment are the passing rates with respect to national licensing exams and time-to-degree. All three Schools meet or exceed benchmarks with respect to pass rates and/or time-to-degree. UT Southwestern publishes goals for student achievement and the success of its students in achieving those goals on its Student Achievement Goals webpage.

Student Information

Expectations and Responsibilities of Students

Throughout their educational experiences at UT Southwestern, students are held to the ethical and professional standards of their school, program of study, and corresponding profession. All students are expected and required to obey federal, state, and local laws; to comply with the UT System Regents' Rules and Regulations and all policies, procedures, rules and regulations of The University of Texas System and UT Southwestern; to follow directives issued by an administrative official of the UT System or UT Southwestern in the course of his or her official duties; to observe standards of conduct appropriate for an academic medical institution; and, to accept full responsibility to pay all tuition, fees and other costs associated with enrollment.

In addition to the policies contained in this catalog, UT Southwestern has established institutional policies and procedures outlining students' responsibilities in the *Handbook of Institutional Policies and Operating Procedures*. Chapter 10 of the *Handbook* is dedicated to students, postdoctoral scholars, residents, and fellows. *Handbook* policies address student conduct and discipline; fitness for participation; leaves of absence; academic decisions; complaints and resolutions; payment of tuition and fees; reasonable accommodations due to disability; and, student rights under the Family Educational Rights and Privacy Act (FERPA).

The *Handbook* details requirements for admission and enrollment, including insurance coverage, immunizations, background checks and drug screening. The *Handbook* also outlines UT Southwestern's commitments to ensuring that its working, educational, and training environments are free from discrimination and to providing equal opportunities for qualified applicants and students with disabilities.

The *Handbook* is in electronic form and accessible to enrolled students via the UT Southwestern intranet site. Copies of policies may be obtained from the Office of Enrollment Services or the Dean's Office of the applicable school. Additional policies and expectations apply within individual schools, programs, and courses.

Admissions and Post-Acceptance Information Applicable to Students in All Schools

School-specific information is contained within the sites of each school.

Academic Fresh Start

An applicant who is a Texas resident may seek to enter this institution's programs pursuant to the "academic fresh start" statute, Section 51.931 of the Texas Education Code. If the applicant informs the Office of Enrollment Services in writing of the election by submitting the Academic Fresh Start Acknowledgment Form prior to the specified application deadline, UT Southwestern will not consider academic course credits or grades earned by the applicant 10 or more years prior to the starting date of the term in which the applicant seeks to enroll. An applicant who makes the election to apply under this statute may not receive any course or prerequisite credit for courses taken 10 or more years prior to enrollment.

An applicant who has earned a baccalaureate degree under the "academic fresh start" statute and applies to this institution's graduate programs will be evaluated only on the grade-point average of the course work completed for that baccalaureate degree and on the other criteria stated in the section Evaluation of Applicants.

Active Military Service

A student who withdraws from school to perform active military service (not including Texas National Guard training exercises) will not have to reapply for admission but will be readmitted upon request made within one year of being released from active military service. The student may be eligible for the same financial assistance provided before the student's withdrawal.

Criminal Background Check

Clinical rotations and other educational experiences in clinical settings are an essential element of the curriculum for UT Southwestern clinical training programs. Individuals who cannot participate in clinical activities due to an unsatisfactory background check are unable to fulfill the requirements of the clinical training program. Therefore, it is UT Southwestern policy that all individuals accepted into a clinical training program must submit to and satisfactorily complete a background check as a condition of admission and continued enrollment. An

unsatisfactory background check or refusal to submit to a background check may result in rescission of a conditional offer of admission or disciplinary action up to and including dismissal.

Applicants who have been conditionally accepted into a clinical training program must submit to and satisfactorily complete a background check prior to enrollment. A conditional offer of admission is contingent upon satisfactory completion of the background check and may be rescinded.

For safety, security, or regulatory purposes, or as necessary to further the goals of the institution, current students may be required to complete a background check to determine suitability for continued enrollment in a clinical training program. Current students who have a break in enrollment (e.g., an approved leave of absence) must complete a background check as a condition of re-enrollment in a clinical training program.

Drug Testing

UT Southwestern is committed to ensuring that all students perform the clinical duties associated with their education and training in a safe, productive, and effective manner. In accordance with this institutional commitment, it is the policy of UT Southwestern that all students must submit to a drug screen within 30 days prior to beginning a clinical training program or returning from a break in enrollment. Verification of satisfactory results must be received by the Office of Enrollment Services prior to the student's first day in the clinical training program.

Students must obtain the required drug screen from the third-party vendor designated by UT Southwestern. Failure to timely submit to a drug screen or to provide a negative result in accordance with this policy may result in delayed enrollment, revocation of acceptance, or disciplinary action, up to and including dismissal. Students who receive a positive drug screen may also be subject to additional action under other UT Southwestern policies, including but not limited to EDU-151 Student Conduct and Discipline.

International Applicants

The Office of International Affairs ensures that foreign nationals holding nonimmigrant visas who are at UT Southwestern for the purpose of internships, academic training, research, or employment obtain and maintain legal temporary United States visa status and/or employment authorization, in accordance with federal law and UT Southwestern policies. The Office of International Affairs should be contacted a minimum of four months prior to an international student's first day of orientation to allow for the review and processing of immigration documents, visa application at a U.S. Consulate/Embassy abroad, and timely arrival on campus.

In addition to meeting the general requirements for school admission, all applicants whose native language is not English are required to take the Test of English as a Foreign Language. Test scores must be sent directly from the TOEFL Information Center to the Office of Enrollment Services, UT Southwestern. (Photocopies will be used for review only and are not accepted as official.)

TOEFL is computer-based. The test is offered at Sylvan Technology Centers, specified universities, and Educational Testing Service field offices.

Transcripts of records from foreign universities must be evaluated with subject, grade, and grade-point average breakdowns. It is preferred that the applicant provide the transcript(s) with this information translated into English to facilitate review. Translation service is available from Educational Credential Evaluators for a fee. For applications and fee information, contact ECE, P.O. Box 514070, Milwaukee, WI 53202-3470, 414-289-3400, or visit the ECE website. ECE evaluations should be sent directly to the Office of Enrollment Services. ECE requires at least one month to prepare an evaluation after all documentation is complete.

Before the Office of International Affairs will issue a Form I-20, "Certificate of Eligibility for Nonimmigrant F-1 Student Status," evidence of financial support while in the United States must be demonstrated. The minimum amount of financial support for an academic year is more than $17,000 plus the costs of tuition and fees. This amount is subject to change each year. In addition, proof of financial support in the amount of $2,000 for each dependent is required. There are two ways to demonstrate proof of financial support:

1. If the student is awarded a stipend, a letter from the dean indicating the amount of the stipend, or;
2. In the case of those students who will receive partial or no funding from UT Southwestern, a financial statement must be provided guaranteeing adequate funds as stated above for educational, living, and other expenses while in the United States.

The Office of International Affairs will provide additional instructions to admitted students so that the appropriate documentation can be submitted in order to determine eligibility for the Form I-20.

Once a student is issued the Form I-20, the document must be presented to U.S. consular officials when applying for the F-1 visa abroad. It is the responsibility of the incoming student to inform the Office of International Affairs on the progress of the visa application. Immediately after an F-1 student enters the United States, they are required to report in person to the Office of International Affairs. Further information may be obtained from the Office of International Affairs.

Information Applicable to All Enrolled Students

Academic Calendar

The Office of Enrollment Services publishes a detailed academic calendar annually.

Insurance Requirements

- Health Insurance – All UT Southwestern students are required to have and maintain major medical health insurance coverage while enrolled. UT Southwestern has contracted with Academic Blue Student Health Plan, a Blue Cross Blue Shield plan, to make health insurance available to students who do not have insurance coverage from

another provider. All alternative insurance plans must comply with the PPACA (Patient Protection and Affordable Care Act). International students should consult the Office of International Affairs for more information regarding the requirements for international students. Proof of coverage is required or mandatory coverage by the Student Health Plan will be provided.

- Professional Liability Insurance – In accordance with Regents Rule 50501, UT Southwestern students in academic programs that involve direct contact with patients ("covered academic programs") are required to purchase professional liability insurance. Premium rates, coverage limits, eligibility, exclusions, and responsibilities are set forth by the University of Texas System Professional Medical Liability Benefit Plan (the "Plan").
- Disability Insurance – Information on disability insurance is recommended and available through the Office of Enrollment Services.

Required Immunizations

All students must comply with immunization requirements in accordance with UT Southwestern policy. Students enrolled at UT System institutions will assume the full cost of the immunizations. Students enrolled in a clinical training program must have the following:

- **Tetanus-diphtheria-pertussis** – One (1) dose of adult Tdap is required. If last Tdap is more than 10 years old, you must receive another tetanus booster (Tdap or Td vaccine).
- **Tuberculosis Screening** – One (1) TB screening (PPD skin test or IGRA blood test) on or after January 1 of current year is required. If history of a positive PPD reading exists, documentation of a chest X-ray within six months of enrollment is required (must send radiology report of chest X-ray).
- **MMR (Measles, Mumps, Rubella)** – Two (2) doses of MMR vaccine or two (2) doses of Measles, two (2) doses of Mumps, and one (1) dose of Rubella; or titers positive for immunity to Measles, Mumps, and/or Rubella. If submitting serologic proof of immunity (titer), a copy of the lab report is required.
- **Varicella (Chicken Pox)** – Two (2) doses of Varicella vaccine or titer positive for immunity to Varicella. History of chicken pox disease is not accepted as a form of immunity. If submitting serologic proof of immunity (titer), a copy of the lab report is required.
- **Hepatitis B** – Three (3) doses of vaccine followed by a positive quantitative Hepatitis B Surface Antibody (titer). The titer is required even if you had the Hepatitis B vaccines as a child. If the titer is negative, you should receive a Hepatitis B booster and recheck the titer in 4-8 weeks. A copy of the lab report is required.
- **Bacterial Meningitis** – One (1) dose of bacterial meningitis vaccine if younger than age 22 prior to your first day of classes. The vaccine must be administered within the past 5 years and at least 10 days prior to enrollment.

All new students to UT Southwestern, in conjunction with their initial registration, receive information approved by the Texas Department of Health related to bacterial meningitis. This

information includes the symptoms of the disease; how it may be diagnosed and its possible consequences if untreated; how the disease is transmitted; how it may be prevented; and the relative risk of contracting the disease for students of higher education. The information also discusses the availability and effectiveness of vaccination against treatment for the disease and sources of additional information. Students are requested to confirm their receipt of this information.

Proof of immunization is required for students who are less than 22 years old at the time of their enrollment at UT Southwestern.

AIDS, HIV, and Hepatitis B Virus

UT Southwestern recognizes Acquired Immune Deficiency Syndrome (AIDS), Human Immunodeficiency Virus (HIV), and Hepatitis B Virus as serious public-health threats. To promote an informed and educated response to issues and questions concerning AIDS, HIV and HBV, UT Southwestern policy provides a framework for managing risks associated with HIV, AIDS, and HBV in compliance with state and federal laws in the context of the medical, educational, legal, administrative, and ethical issues involved. For additional information, the Texas Department of Health educational pamphlet on HIV will be made available to students upon request through Student Health Services.

Immunization and Infectious Disease Prevention Policy

UT Southwestern demonstrates its commitment to its students through a comprehensive system designed to maintain their health and provide support if exposures occur during academic or training activities. By utilizing this system, UT Southwestern contributes to the continued health and safety of our students, our health care workforce, and our patients, and consequently to the health of society.

Such hazards include exposure to patients with contagious diseases that can be transmitted to students and other health care providers by way of airborne droplets or needle-puncture wounds involving infected body fluids. Examples of these diseases include tuberculosis, hepatitis B, and AIDS.

In the event of a needle stick or exposure to human blood, bodily fluids, or other potentially infectious material, all students must report the exposure immediately in accordance with the applicable procedure. If a student is exposed while performing program-related assignments, the cost of initial testing and any prophylaxis treatment indicated by the appropriate exposure protocol not covered by insurance will be paid for by UT Southwestern. The individual student will be responsible for all remaining costs that may result from the hazardous exposure. Students are required to carry comprehensive health insurance in case an unexpected illness or injury occurs. Disability insurance is recommended. Information on obtaining disability insurance is available through the Office of Enrollment Services.

Although the risk of contracting serious illness from these hazards is very small, UT Southwestern seeks to reduce incidents of students' exposure to infectious diseases and

environmental hazards. For example, students are required to provide proof of Hepatitis B immunity prior to enrollment; receive a tuberculosis screening intermittently during their enrollment; and otherwise comply with the immunization requirements set by state law and the Texas Higher Education Coordinating Board. Clinical students receive training in blood-drawing techniques and patient-isolation policies prior to clinical participation. Students must complete the infectious disease prevention and protocol education and training as required by each training program, including any applicable clinical or laboratory safety training. Compliance with all training requirements will be verified by the program.

Students also receive instructions from their Schools as part of onboarding that outlines the proper course of action should a hazardous exposure occur. Students are responsible for understanding and adhering to all infection control policies, programs, and protocols that are applicable to their training program and to the hospital, clinic, or department in which they are training (e.g., hand hygiene, disinfection/sterilization, isolation precautions). The effects of infectious and environmental disease or disability on student learning activities are documented in the catalogs of the schools and in institutional policies.

UT Southwestern Medical Center and each School reserves the right to restrict patient contact by a student believed to pose a risk to the health of patients.

Student Housing

UT Southwestern Medical Park apartments consist of 282 one- and two-bedroom apartments for full-time medical, graduate, and health professions students. All apartments are within a 24-hour security-controlled area. Apartment amenities include all appliances and full-size washer and dryer. The surroundings include a large pool and gazebo, clubhouse, workout facility, and study center. A shuttle bus connects apartments with the North and South Campus.

Current and prospective students who intend to reside in any UT Southwestern-owned and –operated housing facilities are required to document immunization for bacterial meningitis prior to occupancy.

Academic Policies

In addition to the policies contained in this catalog, UT Southwestern has established institutional policies and procedures outlining students' responsibilities in the *Handbook of Institutional Policies and Operating Procedures*. Chapter 10 of the *Handbook* is dedicated to students, postdoctoral scholars, residents, and fellows. The *Handbook* is in electronic form and accessible to enrolled students via the UT Southwestern intranet site. Copies of policies may be obtained from the Office of Enrollment Services or the Dean's Office of the applicable school. Additional academic policies and expectations apply within individual schools, programs, and courses.

Enrollment

Students are expected to be enrolled full time for the duration of their studies at UT Southwestern. Course and Program requirements are stringent and follow curriculum plans within the three Schools. Course requirements for each Program are listed in the appropriate School chapters of the online catalog.

Student Conduct and Discipline

All students are expected and required to obey Federal, State, and local laws; to comply with the Regents' *Rules and Regulations* and all policies, procedures, rules and regulations of UT System and UT Southwestern; to follow directives issued by an administrative official of the UT System or UT Southwestern in the course of his or her official duties; and to observe standards of conduct appropriate for an academic medical institution.

Each student, by accepting an offer of admission, is subject to UT Southwestern's conduct and discipline policies. Student disciplinary actions for violation of standards of conduct will be conducted in accordance with institutional policies and procedures. Students will be afforded notice of the charges against them and an opportunity to respond, and may elect to have an impartial hearing in accordance with UT Southwestern policy. Copies of UT Southwestern's student conduct and discipline policy and procedure are available online and from the Associate Deans for Student Affairs and the Dean's office of each school.

Fitness for Participation in UT Southwestern Activities

Throughout their educational experiences at UT Southwestern, learners must be held to the ethical and professional standards of their chosen professions. Impaired learners can have a negative impact on the learning and working environment, and may present a safety hazard to themselves, others, or the public. Accordingly, it is UT Southwestern policy that all learners must be able to participate in UT Southwestern-related activities in a fit and safe manner. Learners must not be unable to participate in UT Southwestern-related activities because of intoxication or other impairment, regardless of whether these activities take place on property or in buildings owned or controlled by UT Southwestern. Learners are expected to manage their health and behavior so that they can participate in UT Southwestern-related activities in a safe, productive, and effective manner.

Policies Against Discrimination

To the extent provided by applicable law, no person shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity sponsored or conducted UT Southwestern on the basis of race, color, national origin, religion, sex, age,

disability, genetic information, protected veteran status, or citizenship status. UT Southwestern also prohibits discrimination on the basis of sexual orientation, gender identity, and gender expression.

To ensure fair treatment of individual cases where discrimination is alleged and to maintain the integrity of the institution's academic system, students with grievances alleging discrimination are encouraged to seek a resolution through use of the institution's internal procedures. Any grievances alleging discrimination should be resolved as promptly as possible. Students will not be penalized in any way for bringing complaints of discrimination with the institution or for participating in any investigation. To the extent possible, and in accordance with applicable law and UT Southwestern policy, student discrimination complaints will be kept as confidential as possible.

A student who feels discriminated against on the basis of sex, including sexual misconduct, harassment, or violence, should submit a complaint to the Title IX Coordinator or a Deputy Title IX Coordinator for handling in accordance with UT Southwestern's sex discrimination policy and complaint resolution procedure.

A student who feels discriminated against on a basis other than sex should seek resolution of the grievance through an appointment with the Dean of the School (or designee). The resources of the Office of Diversity & Inclusion and Equal Opportunity also are available to the student. If the student cannot resolve the grievance through these routes, the student may appeal to the Provost in writing within 10 calendar days. The Provost, or appropriate designee, may meet with the student to discuss the grievance. Within five calendar days of this meeting, the Provost, or designee, may 1) decide the grievance 2) call for the appropriate faculty committee to investigate the grievance and make recommendations concerning the matter, 3) choose to investigate the matter personally, or 4) refer the matter to the Office of Diversity & Inclusion and Equal Opportunity, or to a Title IX Coordinator for investigation, as appropriate.

An investigation by a faculty committee, the Provost or designee must be completed within 30 calendar days. The Provost will notify the student in writing of the outcome of the grievance. If the decision rendered by the Provost is unsatisfactory to the student, the student may appeal in writing to the President within 10 calendar days of the Provost's decision. The President will issue a final, written decision to the student within 30 calendar days. An investigation conducted by the Office of Diversity & Inclusion and Equal Opportunity or by a Title IX Coordinator will follow applicable complaint and resolution procedures pursuant to institutional policies, including timetables and appeals.

Information Resources

Students are expected to observe ethical, responsible behavior in using UT Southwestern information resources. UT Southwestern information resources are the property of UT Southwestern and are intended to support authorized research, instruction, patient care, and administrative activities. Access to these information resources is a privilege. Users must use UT Southwestern information resources for UT Southwestern business only and not for personal use, except for acceptable incidental personal use permitted by UT Southwestern policy.

As UT Southwestern property, all UT Southwestern information resources are subject to access and monitoring without notice to the user for any purpose consistent with the duties and missions of the institution, including without limitation responding to public information requests, court orders, subpoenas or litigation holds, conducting maintenance, or conducting inventories or investigations. Complete rules and guidance for use of UT Southwestern information resources can be found in Chapter 6 – Information Security, Privacy and Resources (ISR) of the *Handbook of Institutional Policies and Operating Procedures*.

Leave of Absence

A student may request a non-medical leave of absence using the Leave Request Form available from the Office of Enrollment Services. The decision to approve or deny a request for a leave of absence is entirely at UT Southwestern's discretion, and will take into account the student's academic standing, the reason for and duration of the requested leave, the student's degree progress, and the impact a period of leave may have on the student's ability to successfully complete program requirements. In general, requests for a leave of absence longer than twelve (12) months will not be approved.

A leave of absence due to the student's own medical condition should be requested and will be considered in accordance with the Learners with Disabilities policy.

Active Military Service: Students who are engaged in active military service may receive a temporary excused absence from attending classes, engaging in other academic activities, or examinations to participate in called military service. Students who are excused for these activities are expected to complete assignments and examinations within a reasonable time frame as determined with the Course Director.

Student Travel

Students traveling more than 25 miles from the UT Southwestern campus to activities organized, sponsored, and funded by the institution are subject to the UT Southwestern

student travel policy. The student travel policy includes the required use of seat belts by all motor vehicle passengers, the prohibition of any alcohol or illegal substances, passenger limitations, licensing and training of all vehicle operators, proof of insurance and vehicle inspection, and the legal operation of motor vehicles. Reimbursement for travel from UT Southwestern funds, including student organization funds, is subject to UT Southwestern policies and procedures pertaining to the documentation of reimbursable expenses.

Student Organizations

A number of organizations offer students opportunities for association with individuals of shared interests or backgrounds. These organizations provide personal and professional development opportunities for members and add value to the individual school and community. Any student organization seeking to become a registered or sponsored student organization must comply with the procedures set forth in the Student Organization Manual, which is published by and maintained in the Office of Student Life, Bryan Williams Student Center. Each student organization, whether registered or not, must conduct the affairs of the organization in accordance with the Regents' Rules, UT Southwestern's *Handbook of Institutional Policies and Operating Procedures*, and the Student Organization Manual. A list of organizations is available from the Bryan Williams, M.D. Student Center or on the UT Southwestern website.

Student Organization Travel

No registered student organization may require its members to travel at any time. Should a student organization sponsor optional travel for its members, the organization must submit an Intent to Travel Form to the Director of the Bryan Williams, M.D. Student Center or the Postdoctoral Affairs Office at least four (4) weeks before domestic travel and two (2) months before international travel. With the exception of postdoctoral associations, the organization must submit a detailed trip itinerary, roster identifying all travelers (including non-students), and completed Release and Indemnification forms for all travelers, to the Office of Student Life no later than 48 hours before departure. Copies of the student travel policy and required forms are available from the Office of Student Life, Bryan Williams Student Center.

Intellectual Property

Complete rules and guidance for the management and disposition of technology developed in the course of research at UT Southwestern, including licensing, distribution of royalties, handling of income generated by the sale or licensing of tangible by-products of research, including relevant policies regarding copyrighted material can be found in Chapter 13 – Intellectual Property (INP) of the *Handbook of Institutional Policies and Operating Procedures*.

Inclement Weather

UT Southwestern will remain open regardless of weather conditions. Students must use their own judgment with regard to personal safety; however, student responsibilities are not obviated by weather conditions. If a student reasonably believes traveling in such weather would be hazardous, the student will be expected to make up missed classwork.

Smoke-Free Campus

Smoking and the use of tobacco are prohibited on the campus of UT Southwestern.

Use of UT Southwestern Medical Center Name

The University seal, logo, and the names UT Southwestern Medical Center, The University of Texas Southwestern Medical Center, Southwestern Medical Center, UT Southwestern Medical School, UT Southwestern Graduate School of Biomedical Sciences, and UT Southwestern School of Health Professions are registered trademarks of The University of Texas System.
UT Southwestern policies and procedures governing the use of the University name and registered trademarks can be found in Chapter 2 – Administration (ADM) of the *Handbook of Institutional Policies and Operating Procedures*.

Tuition & Fees

Graduate School Tuition and Fees

Medical School Tuition and Fees

Health Professions Tuition and Fees

All fees are subject to change without prior publication and become effective when enacted. The Texas Legislature does not set the specific amount for any particular student fee. The following student fees are authorized by the state statute; however, the specific fee amounts and the determination to increase fees are made by the University administration and the UT System Board of Regents.

UT Southwestern expects individual students and student organizations to responsibly discharge their financial and contractual obligations, as outlined in its Student Debts Policy.

In-State and Out-of-State Residency Classifications

Under state statutes and Texas Higher Education Coordinating Board rules and regulations interpreting those statutes, a prospective student is classified as a resident of Texas, a

nonresident, or a foreign student. A person who has resided in the state under circumstances specified in these rules is eligible for classification as a resident. A non-U.S. citizen, a foreign national or a permanent resident of the United States not eligible to be classified as a resident is classified as a nonresident. A non-U.S. citizen who is not a permanent resident of the United States and has not been permitted by Congress to adopt the United States as a domicile while in this country is classified as a foreign student. An individual classified as a nonresident may qualify, under certain exceptions specified in these rules, for resident tuition rates and other charges while continuing to be classified as a nonresident.

The student is responsible for registering under the proper residence classification. If there is any question about the student's right to classification as a resident of Texas, it is the student's obligation to consult the Office of Enrollment Services and have his or her status officially determined. The applicable statutory provisions are set forth in section 54, Texas Education Code. Rules and regulations and interpretations have been issued by the Texas Higher Education Coordinating Board for the effective and uniform administration of these provisions.

Students must file a Core Residency Questionnaire for classification as a resident. If the student's classification as a resident becomes inappropriate for any reason, the student must notify the proper administrative official at the medical center. Information and advice regarding residency status are available from the Office of Enrollment Services.

Texas statutes provide that a nonresident student is permitted to pay the same tuition and fees as a Texas resident if the student holds a competitive scholarship worth at least $1,000 per year.

Medical School Residency Requirement

By law, no more than 10 percent of the entering class of the Medical School may be nonresidents. It is the goal of UT Southwestern to accept only those students who are guaranteed to complete the full four years of the curriculum based on citizenship or permanent resident status. Therefore, only applicants who are permanent U.S. residents or U.S. citizens will be considered for interview and admission to the Medical School.

Fees Applicable to all UT Southwestern Students

Application Filing Fee: Application fees are outlined in the admissions section for each School.

Audit Course Fee: Current UT Southwestern students incur a $5 fee per course enrollment. Non-UT Southwestern students are charged $25 per course enrollment.

Graduation Fee: Graduation fees of $120, payable at registration for the final semester, are required of all students who will receive a degree. Students who withdraw before graduation are entitled to a refund of the graduation fee. No refund can be given for students who graduate in absentia.

Health Insurance: Students are required to present documentation of a current health insurance plan every term. Proof of coverage is required or mandatory coverage will be provided, for which the student has financial responsibility. International students should consult the Office of International Affairs for more information regarding the requirements for international students.

In Absentia Registration Fee: Students enrolled in other degree and certificate programs registering in absentia incur a $12 per enrollment term if they are a Texas resident and a $50 per enrollment term for non-residents.

Medical Services Fee: Medical Students in their first-, second- and third-years, Graduate School students and School of Health Professions students pay a medical services fee of $225 per academic year. Students enrolled in the fourth-year of Medical School pay a medical services fee of $150. The Medical Services Fee provides necessary supplementation for Student Health Services.

Returned Check Fee: A fee of $30 will be charged on any check cashed by and returned to the university. If two or more checks are returned, check-cashing privileges will be suspended for one year.

Student Services Fee: Medical School students in their first, second and third curricular years pay $750 annually and $500 in their fourth curricular year of enrollment. Graduate School students pay $42 per semester hour enrolled, with a maximum of $250 per term and $750 annually. School of Health Professions students pay $40 per semester hour enrolled, with a maximum of $750 annually. The student services fee is used to support Student Health Services; the Bryan Williams, M.D. Student Center; and other student services.

Incidental Fees

Identification cards may be replaced for a replacement fee of $10.

Lab carrel keys can be replaced for a replacement fee of $35.

The Health Sciences Digital Library and Learning Center recovers the cost of some services, such as black and white photocopying and laser printing, at 10 cents per page and color laser printing at $1 per page. Charges for other cost-recovery-based services vary. These and other manuscripts can be archived for $13 per volume. Dissertations can be published and archived

for $85 per volume with an optional copyright fee of $50. Thesis archiving is $15. There is no charge for literature searching or routine processing of interlibrary loan requests made by students; however, there is a fee for expedited interlibrary loan delivery.

Campus Parking

Limited parking facilities are available on campus. Student, trainees, or fellows wishing to park on campus are required to register their vehicle and obtain a permit and pay an annual parking registration fee. The fee is $120 for 2018-2019. Student parking is restricted to designated areas, and violations of the parking regulations may result in fines and/or loss of parking privileges.

Special parking is available to people with a disability. Those who permanently require wheelchairs, crutches, or leg braces should advise the Office of Parking Services. Every effort will be made to provide special parking for those whose need for crutches or wheelchairs is temporary; those individuals should take a physician's statement with a time estimate to the Office of Parking Services.

Texas law requires motor vehicles not registered in this state to satisfy the state requirements for vehicle emission inspections. Owners of vehicles who reside in Texas who fail to register the vehicle in Texas or fail to display a current inspection certificate may violate Texas law.

Tuition Installment Payments

Students may elect to pay tuition and certain fees in installment payments (not applicable to the summer term). At the time of registration, students wishing to participate in the installment payment option will be required to sign a promissory note and a truth-in-lending form. These documents will specify the terms and conditions of the payment plan. Students will incur a $25 charge when participating in the plan. A $10 late fee will be charged for each payment not received by the due date.

The Office of Accounting will mail notices as reminders of payment due dates; however, students are obligated to pay on or before the due date regardless of the receipt of a reminder. A student who fails to provide full payment of tuition and fees, including late fees assessed, to the university when the payments are due is subject to all penalties and actions authorized by law, including, but not limited to: 1) bar against admission at the institution; 2) withholding of diploma or official transcript; or 3) inability to participate in graduation ceremony.

Refund of Tuition and Fees

No refund will be made until the expiration of 12 class days after the beginning of classes. A matriculation fee may be deducted from the refund to students who withdraw. Students should appeal a refund within one year after official withdrawal.

Graduate School of Biomedical Sciences and School of Health Professions

Fall and Spring Refund of Tuition and Fees

Only students who personally paid tuition are eligible for a direct refund. Students whose tuition is paid by a sponsor, donor, or scholarship will not personally receive a refund, as the tuition will be refunded to the source.

Eligible students in the Graduate School of Biomedical Sciences and the School of Health Professions who officially withdraw from UT Southwestern will receive a refund of a percentage of tuition and refundable fees based on the schedule below.

- Prior to the first class day – 100 percent
- The first five class days – 80 percent
- The second five class days – 70 percent
- The third five class days – 50 percent
- The fourth five class days – 25 percent
- Thereafter – no refund

Summer Term Refund of Tuition and Fees

Graduate School and School of Health Professions students who officially withdraw during a summer term may receive a refund of tuition and applicable fees based on the schedule below.

- Prior to first class day – 100 percent
- The first three class days – 80 percent
- Fourth, fifth, or sixth class days – 50 percent
- Thereafter – no refund

Refund procedures are the same for summer, fall, and spring semesters.

Medical School

Medical School students, including Medical Scientist Training Program (MSTP) students enrolled full-time in Medical School coursework, who withdraw in the fall or spring of the academic year will receive refund of tuition and fees based upon the schedule below:

- Prior to the first class day – 100 percent
- The first five class days – 80 percent

- The second five class days – 70 percent
- The third five class days – 50 percent
- The fourth five class days – 25 percent
- Thereafter – no refund

In addition, Medical School students who withdraw in the fall will receive a 100 percent refund of tuition and fees for the second half of the year (spring).

Return of Title IV Funds

A student attending UT Southwestern who has received student financial aid and who officially withdraws, takes an approved leave of absence or is dismissed may be liable to return all or a portion of any aid received if the student's separation (withdrawal, leave or dismissal) occurs after a term has begun and before completion of the academic term. The Office of Student Financial Aid will utilize approved federal formulas to determine the amount of applicable financial aid as of the separation date. Financial aid funds that must be returned by the separating student will be designated to the appropriate financial aid program in accordance with federal regulations.

A student's separation date is the date the student begins the withdrawal process or officially notifies UT Southwestern of an intent to withdraw; or the student's last date of attendance at a documented, academically related activity.

If UT Southwestern is required to return any funds to one or more financial aid programs on the student's behalf as a result of the student's withdrawal, leave of absence or dismissal within a term, the student will be billed accordingly for all amounts returned on the student's behalf.

Graduate School of Biomedical Sciences Tuition & Fee Schedule

2018-2019

	Point of Service Fees	Per Semester Credit Hour	Per Term Costs (Full-time, estimated at 12 SCH)	Per-Year Costs (Full-time, estimated at 24 SCH)
Statutory Tuition				
Resident		50		
Non-Resident		465		$11,160
Differential Tuition				
Biomedical Engineering Program		50		$1,200
Designated Tuition		196.21		$4,709.04
Fees				
Student Service Fee		42	$225 (maximum cap)	$750 (maximum cap)
Medical Service Fee			$75	$225 (maximum cap)
Computer Use Fee			$81.66	$245
Malpractice Fee				$14.50
Graduation Fee	$120			
Dissertation Publish & Archive Fee	$85			
Dissertation Copyright Fee (optional)	$50			

	Point of Service Fees	Per Semester Credit Hour	Per Term Costs (Full-time, estimated at 12 SCH)	Per-Year Costs (Full-time, estimated at 24 SCH)
Thesis Archiving Fee	$15			
Tuition Installation Fee	$25			
Application Fee	$50			
Late Registration	$220			
ID Card Replacement	$10			

Within the Graduate School, the Division of Basic Science pays tuition and fees during the first year. In subsequent years, tuition and fees are paid from research grants awarded to students' dissertation mentors or from an institutional NIH training grants associated with various areas of research training.

For information on specific Programs, visit the Graduate School's Cost and Financial Support page. All students studying for a Ph.D. in Basic Sciences receive a nationally competitive research assistantship of $34,500 per year throughout the course of their Ph.D. studies.

Differential Tuition Supplement: The Differential Tuition Supplement for Biomedical Engineering courses is $50 per semester credit hour.

Dissection Lab Fee: Students in HCS 4309, HCS 5309, or BME 5308 pay $410 per course enrollment.

Medical School Tuition & Fee Schedule

2018-2019

	First Year Medical Student	Second Year Medical Student	Third Year Medical Student	Fourth Year Medical Student
Statutory Tuition				
Resident	6,550	6,550	6,550	6,550
Non-Resident	19,650	19,650	19,650	19,650
Differential Tuition				
Designated Tuition	13,104	13,104	13,104	13,104
Fees				
Student Service Fee	750	750	750	500
Medical Service Fee	225	225	225	150
Computer Use Fee	245	245	245	245
Malpractice Fee	25	25	25	25
Lab Fee (annual)	35	32	26	26
Biomedical Imaging Fee (previously Microscope)	100	50		
Graduation Fee				120
Tuition Installment Fee	25	25	25	25
Late Registration	220	220	220	220
ID Card Replacement Fee	10	10	10	10

	First Year Medical Student	Second Year Medical Student	Third Year Medical Student	Fourth Year Medical Student
International Visiting Student App Fee				150

Incidental Costs

For incidental costs, please refer to the Medical School Cost of Attendance.

School of Health Professions Tuition & Fee Schedule

2018-2019

	Actual	At 24 SCH	Notes
Statutory Tuition (per credit hour)			
Resident	$50	$1,200	
Non-Resident	$465		
Differential Tuition (per credit hour)			
Physician Assistant Program	$75	$1,800	
Physical Therapy Program	$75	$1,800	
Designated Tuition (per credit hour)			
Graduate	$196.83	$4,724	
Fees (annual unless noted otherwise)			
Student Services Fee (per credit hour)	$40	$750	Capped at $750
Medical Service Fee	$225	$225	
Computer Use Fee	$245	$245	
Malpractice Fee:			
All except Physician Assistant	$14.50	$14.50	
Physician Assistant	$14.50	$14.50	
Lab Fee (per lab course)	$10		
Lab Fee - Dissection (per lab course)	$410		

	Actual	At 24 SCH	Notes
Graduation Fee	$120		
Tuition Installment Fee	$25		
Application Fee	$50		
Late Registration	$220		
ID Card Replacement Fee	$10		

Differential Tuition Supplement

- Physician Assistant Studies courses – $75 per semester credit hour
- Physical Therapy courses – $75 per semester credit hour

Variable Course Fees

Clinical Nutrition

Course	Fee
CN5331	$50
CN5332	$50

Physician Assistant Studies

Course	Fee
Basic Life Support	$45
Advanced Cardiac Life Support	$130

Physical Therapy (DPT prefix)

Course Number	Fee
#5135	$150
#5138, #5217, #5218, #5341	$25
#5133, #5139	$10
#5140	$100
#5151, #5235, #5306, #5320, #5341, #5344	$50
#5240, #5351	$35
#5302	$30
#5304, #5305, #5330, #5431	$20
#5401-#5404	$200

Prosthetics-Orthotics (MPO prefix)

Courses	Fees
#5101	$22
#5308, #5310	$105
#5313	$210
#5407, #5504	$270
#5409	$580
#5505	$320

Prosthetics & Orthotics Master's Program (New)

Course	Fee
MPO 5101	$872
MPO 5504	$570
MPO 5505	$683
MPO 5407	$523
MPO 5308	$294
MPO 5409	$1,246
MPO 5310	$565
MPO 5313	$635

Radiation Therapy (RT prefix)

Courses	Fee
#3211, #3212, #3301, #3302, #3314, #3412, #3413, #3421, #4323, #4422	$25
#3301	$50
#3304, #3405, #4406, #4407, #4315	$200
#4216	$10
#4302	$60

Radiation Therapy Master's Program (New)

Courses	Fee
5201	$50

Courses	Fee
HCS 5306	$100
RT 5206	$50
RT 5301	$25
RT 5401	$50
RT 5202	$200
RT 5204	$100
RT 5205	$100
RT 5305	$100
RT 5306	$100
RT 5303	$50
RT Pathway	$150
RT 3314	$150
RT 5304	$50
RT 4315	$100
HCS 5230, RT5307, 5308	$100
RT 5311	$50
RT 5307, 5308	$50
RT Pathway	$150
RT 5310	$100

Courses	Fee
RT 5212	$150
RT 5101	$50
RT 5102	$50
RT 5300	$200
RT 5207	$50
RT Pathway	$150
RT 5203	$50
RT Pathway	$150
RT 3301	$75

Financial Aid

UT Southwestern makes student financial assistance available through a number of loan, scholarship, and grant programs. Most of these programs (unless otherwise noted) are administered by the Office of Student Financial Aid, operating under policies established by the various agencies providing the funds.

The Medical Center's philosophy is that financing education is primarily the responsibility of the student and the student's family; however, UT Southwestern seeks, within its means, to assist financially the qualified student whose family resources are insufficient to meet the full costs of education. No student should allow the pressures of financial constraint to cause a postponement of educational plans without first consulting with the Office of Student Financial Aid. The Office can provide the necessary applications, forms, and advice concerning the rules and regulations of federal, state, and institutional financial-aid programs available to students. Additionally, the Office can provide counseling in debt management and can assist students in finding outside sources of aid for which they may qualify. Students are under significant pressure while preparing for classes or clinical rotations, and the Office of Student Financial Aid will attempt to alleviate additional financial burdens.

In order to be eligible for financial assistance, the student must first determine financial need by filing the Free Application for Federal Student Aid for the specific academic year. The FAFSA generally is available preceding the start of the academic year. For faster processing, the FAFSA is available at the FAFSA website and accessible as a link from the UT Southwestern Student Financial Aid website. The FAFSA should be submitted as far in advance of enrollment as possible in order to be assured full consideration. Financial need is defined as the difference between the reasonable cost of education and the amount that the student and the student's family can reasonably be expected to provide.

Financial-aid awards usually are assigned for the full academic year. All awards are subject to revision if, at any time, the information used as a basis for making the original award changes.

Students are eligible to receive financial aid throughout their education provided they continue to demonstrate financial need and are making satisfactory academic progress in their program of study. The continued receipt of financial aid is not automatic, however, and requires annual reapplication. Students can access the University's Satisfactory Academic Progress policy. A student who wishes to reapply for financial assistance each year must submit the FAFSA in order to determine financial need as well as reasonable academic progress toward the degree program. Continuing UT Southwestern students may access their Renewal FAFSA at the FAFSA website. This secured site is maintained by the U.S. Department of Education.

Students subject to selective service registration under federal law must file a statement that the student has either registered or is exempt from registration before the student is eligible to receive financial assistance. This statement is included in the student's financial aid award notification.

Types of Assistance

Student financial aid comprises three general categories: loans, and grants or scholarships. The aid may be received from various sources: federal programs, state programs, private foundations and corporations, individual contributors, and institutional programs. Detailed information regarding the aid programs is available from the Office of Student Financial Aid.

Scholarships, Fellowships, and Special Funds

Southwestern Medical Foundation has an active scholarship program to help deserving students obtain their education. Student aid is available from scholarship memorial funds maintained by the foundation.

UT Southwestern awards scholarships and fellowships to students based upon a broad range of criteria that include financial need, academic performance, current and prior research, career interests, community service, and significant contributions to social and academic concerns.

The Medical Center will honor other expressed wishes of donors in awarding scholarships, including such considerations as career interests, residency status, and year in school. Scholarships may be awarded on the basis of financial need or academic performance. There are instances when a combination of financial need and academic performance is used to select the recipient.

Scholarships awarded on the basis of financial need rely on the methodology developed by the U.S. Department of Education. This is the same methodology used to determine eligibility for other financial aid. Scholarships awarded on the basis of academic performance rely on the assessment of a student's record in comparison to peers. Factors considered in the awarding of various competitive scholarships and fellowships include:

1. Academic performance as reflected in the grade-point average;
2. Performance on standardized tests (MCAT or GRE);
3. Recommendations from professors or mentors;
4. Scientific research activities;
5. Involvement in community and extracurricular activities; and
6. Demonstrated leadership and personal integrity.

The Student Scholarship Committee is charged with determining the validity and appropriateness of criteria and making selections when criteria do not automatically identify the recipient.

Loans

Loans are financial obligations that must be repaid. Interest and repayment terms vary among the different programs, and UT Southwestern follows a policy of offering the student the most favorable loan for which he or she qualifies if funds are available in the program. All financial aid programs administered by UT Southwestern are subject to the conditions, limitations, and requirements prescribed by the agency sponsoring the program.

Unsubsidized Federal Direct Loans are available to most students who file a FAFSA. The amount of the unsubsidized Federal Direct Loan will be based on a student's total aid budget minus any other aid that has been awarded. Unsubsidized loans accrue interest from the time the loan is fully disbursed. Principal and interest payments may be postponed until completion of a program of study or until the student ceases to be enrolled on at least a half-time basis.

Emergency Loans are available to students with short-term, unforeseen emergency expenses. These loans typically are interest-free if repaid by the due date. The full emergency loan policy can be obtained from the Office of Student Financial Aid.

Tuition Exemptions

Students who are included among the following categories may be eligible for exemption from tuition and specific fees:

1. Certain military personnel and veterans of military service and their dependents;
2. Foreign Service Officers;
3. Higher education faculty and their dependents;
4. Teaching and research assistants and their dependents;
5. Certain recipients of competitive scholarships;
6. Certain students who are accepted into a clinical and biomedical research training program which leads to both the Doctor of Medicine and the Doctor of Philosophy degrees;
7. Dependent children of armed forces, Texas National Guard, or Texas Air National Guard personnel who became totally disabled as a result of a service-related injury, were killed in action, died while in service, were missing serving in action, or whose deaths were directly connected with military service;
8. Children of eligible disabled firefighters or law enforcement officers;
9. Disabled peace officers;
10. Blind and deaf students;
11. Dependent children of active members of the armed forces who are classified by the Department of Defense as prisoners of war or missing in action;
12. Students 55 years of age or older;
13. Certain students who were adopted, formerly in foster or other residential care, or under the conservatorship of the Department of Family and Protective Services;
14. Students enrolled exclusively in distance learning curricula; and
15. Students eligible for other exemptions or waivers as established by the Texas Legislature and the Texas Higher Education Coordinating Board.

Contact the Office of Enrollment Services for more information regarding the eligibility requirements and benefits available.

Payment of Fees for Students with Disabilities

The Department of Assistive and Rehabilitative Services offers assistance for tuition and non-refundable fees to students with disabilities classified as Texas residents, provided their vocational objectives have been approved by a DARS counselor. Other services also are available to assist students with disabilities in becoming employable. Students should call the DARS regional office in Arlington, Texas, at 817-759-3700 for more information.

Campus Security

In accordance with federal law, the University prepares an annual security report containing information about campus security policies and campus crime statistics. This information is available to all current students and employees via the UT Southwestern website.

Applicants for enrollment may obtain a copy of the annual security report by writing to University Police, UT Southwestern, 5323 Harry Hines Blvd., Dallas, TX 75390-9027.

To report a campus emergency, dial 911. To contact University Police for nonemergency matters, dial 214-648-8311.

Campus Carry

UT Southwestern follows all federal and state laws that pertain to weapons – including handguns – on its campus, while striving to provide a campus environment in which students, post-graduate trainees, staff, faculty, vendors, patients, and visitors can focus on their studies, research, work and receipt of medical care with minimal distraction.

The possession of a weapon by an individual anywhere on property owned or controlled by UT Southwestern is strictly prohibited – unless it is a concealed handgun carried by an individual holding a valid license to carry (LTC) a handgun in ways that are consistent with state and federal law, as well as UT Southwestern policy. UT Southwestern property includes streets, sidewalks or walkways, parking lots, parking garages, off-campus leased facilities, and any facility over which UT Southwestern has control. It also includes UT Southwestern owned or leased vehicles.

The carrying of a firearm openly on UT Southwestern property is strictly prohibited.

Any LTC holder who carries a handgun on campus, including within a backpack or purse, must carry it in a holster that completely covers the trigger and the entire trigger guard area, and maintain it on their person at all times. An LTC holder may not carry a partially concealed or wholly visible handgun on or about the LTC holder's person, or intentionally or knowingly display the handgun on UT Southwestern property in plain view of another person, regardless of whether the handgun is holstered.

UT Southwestern strictly prohibits the carrying of concealed handguns in patient areas; campus childcare and playground facilities; and buildings with laboratories where greater than 50 percent of the net assignable square feet in the building contains chemicals, biologic agents, and/or potentially

Emergency Response

The Emergency Response Guide provides an understandable and accessible reference for use in emergency situations in order to promote the safety of the UT Southwestern community. This guide addresses the most common and most likely emergencies that employees, students and visitors may face on the UT Southwestern campus. Students enrolled in any of UT Southwestern's three schools can access the guide on the UT Southwestern intranet.

University officials, the UT Southwestern Emergency Management Committee, and the Office of Safety and Business Continuity have developed this guide into segments, which are updated periodically. It is recommended that all students review the guide and discuss how you and your team would act in various emergency situations before the event. By becoming familiar with the responses prior to emergencies, we can ensure a faster, more reliable response to emergency situations and increase the safety of our campus community.

At UT Southwestern, officials monitor TV, radio, and other communications to keep on top of any emergency situations that may impact the campus. As the situation requires, administration or emergency personnel will provide regular updates on conditions and recommended actions that the campus community should take, such as evacuation, shelter-in-place, and the "All Clear" signal.

In case of an emergency, information will be communicated by a combination of the following:

- **Building Public Address (PA) System:** Most buildings are equipped with fire panel systems that have a public address capability. Emergency personnel are trained to use these systems in emergencies in order to make announcements to the entire building regarding evacuation, shelter in place, etc.
- **UTSW Alert:** UT Southwestern developed the UTSW Alert system to communicate official information during an emergency or crisis situation that disrupts normal operations of the UT Southwestern campus or threatens the health or safety of the campus community.

UT Southwestern faculty, staff, and students listed in the HRMS database will be automatically enrolled in UTSW Alert to receive email alerts, Short Message Service (SMS), text messages, and/or telephone calls to their business, home, or personal mobile phone numbers. This information should be verified and updated annually or as information changes in PeopleSoft.

Users will be provided with emergency messages that will include information about the emergency event, how best to respond, and where to receive further information.

If you have any questions, recommendations, and concerns about this process, please discuss them with your supervisors or contact the Office of Safety and Business Continuity by email. Email

- **UT Southwestern Emergency Information Line 214-645-8879:** In the event of a disaster that affects all or part of the campus, a number has been provided that students, faculty, and staff can call to hear general instructions as to what course of action they should follow. The message will be updated as information becomes available.

Fire Security

UT Southwestern is committed to protecting the safety of those who work on, study at, or visit the campus, and to safeguarding the resources under its stewardship. UT Southwestern works to maintain a campus that is free of recognized hazards and in compliance with applicable local, state, and federal fire and life safety codes, as well as occupational safety best practices.

UT Southwestern complies with the fire and life safety standards and recommendations currently adopted by the Texas State Fire Marshal's Office, as they may be amended from time to time. While UT Southwestern, by virtue of being a state agency, is not covered by the Occupational Health and Safety Act of 1970 (OSHA), UT Southwestern refers to standards adopted under OSHA in assessing and managing occupational safety risks and improving workplace practices and operations.

Safety and Business Continuity, working in coordination with the Occupational Safety and Fire Protection Committee (OSFPC), is responsible for ensuring compliance with these standards and best practices. Through its Fire and Occupational Safety Program, Safety and Business Continuity conducts periodic inspections of campus facilities and construction sites to ensure compliance with fire and life safety standards, as well as to identify workplace safety or housekeeping issues in order to prevent workplace injuries and improve workplace practices and operations. Deficiencies and corrective actions

Gang-Free Zones

Premises owned, rented, or leased by UT Southwestern, and areas within 1,000 feet of the premises are "gang-free" zones. Certain criminal offenses, including those involving gang-related crimes, will be enhanced to the next highest category of offense if committed in a gang-free zone by an individual 17 years of age or older. See *Texas Penal Code, Section 71.028*.

Hazing

Hazing is prohibited by state law (Sections 37.151–157 and 51.936, Texas Education Code), by the regents' Rules and Regulations, Rule 50101, and by the *Handbook of Institutional Policies and Operating Procedures*. The term "hazing" is defined broadly by statute to mean any intentional, knowing, or reckless act occurring on or off the campus of an educational institution that endangers the mental or physical health or safety of a student for the purpose

of pledging, being initiated into, affiliating with, holding office in, or maintaining membership in any organization whose members are, or primarily include, students at an educational institution.

Hazing, whether it occurs on or off campus, via electronic means, or with or without the consent of the student, is prohibited, and violators are subject to criminal prosecution and to student disciplinary action by the institution.

It is an offense not only to engage in hazing but also to encourage hazing, to recklessly permit hazing to occur, or to fail to report hazing that has occurred or is being planned. Any person reporting a specific incident involving a student to the dean or other appropriate official of the university is immune from civil or criminal liability that might otherwise be incurred or imposed as a result of the report.

Missing Persons

Individuals concerned about the well-being of a person from UT Southwestern can contact the University Police at any time by dialing 311 from a University phone or 214-648-8311 from a cell phone or off campus phone. The Southwestern Medical Park Apartments management can be contacted at 214-956-9300. When a caller generates a missing-person report, dispatch will make a record of the call with the name and number of the caller. The record shall indicate the relationship between the caller and the resident, as well as the last time and place the caller saw or heard from the resident or student. Concerned individuals are encouraged to share any information that may be relevant to locating the absent resident.

UT Southwestern Police will take appropriate action to investigate the report and determine whether the situation rises to the level of an emergency, including (but not necessarily limited to) visiting the room where the resident lives.

Depending on the circumstances, additional appropriate steps may include attempts to contact the potentially missing student’s roommate or friends to ascertain the student's whereabouts, contacting the student’s workplace, checking access card usage, or attempting to contact the missing student via email, cell phone, and/or room phone. In addition, the appropriate Deans or their designee will be notified. If a student has identified a confidential contact, UTSW will notify that individual no later than 24 hours after the student is determined to be missing.

Family Educational Rights and Privacy Act

The Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. §1232g, and 34 CFR Part 99 are a Federal law and regulations that provide students with the following rights with respect to their education records:

- to inspect and review their education records;
- to consent to disclosure of their education records to third parties, except to the extent that FERPA authorizes disclosure without consent;
- to request amendment of their education records to ensure that they are not inaccurate or misleading, or otherwise in violation of the student's privacy rights under FERPA;
- to be notified of their privacy rights under FERPA; and
- to file a complaint with the U.S. Department of Education concerning alleged failures by the institution to comply with the requirements of FERPA.

It is the policy of UT Southwestern to protect the privacy and records access rights that apply to records maintained by or for the institution about its current and former students by complying with FERPA at all times. The Director of Student Enrollment Services is the designated institutional official that oversees UT Southwestern's compliance with FERPA and this policy.

UT Southwestern shall provide annual notice to students of their rights under FERPA and this policy; the procedures for exercising their rights; and information about the directory information exception and the process by which a student may elect to opt out of the release of the student's directory information. This annual notice will be included in all general information catalogs for students, which are published by UT Southwestern and available online and through the Dean's office.

The University will not permit access to or the release of personally identifiable information contained in student educational records to any party without the written consent of the student, except as authorized by FERPA. UT Southwestern, pursuant to FERPA, may release education records without the student's consent as follows:

1. **Directory Information.** Directory information may appear in public documents and may otherwise be disclosed without student consent. Students have the right to withhold the disclosure of all directory information through notification to the Office of Enrollment Services. Students are encouraged to designate their directory information preferences using the online self-service portal in the Campus Solutions student records system at the time of registration. Students can make changes to their preferences in Campus Solutions at any time. Although use of the Campus Solutions student records system is preferred, students may also designate or change their directory preferences via written notice to the Office of Enrollment Services. Upon graduation or termination of a student's enrollment for any reason, the release of directory information will be governed by the student's preference in place during the student's last period of enrollment. Former students may change their directory information preference via written notice to the Office of Enrollment Services.
2. **UT Southwestern Officials with a Legitimate Educational Interest** UT Southwestern officials who require access to education records in order to fulfill educational or business purposes or other official responsibilities on behalf of UT Southwestern are allowed access to those records without student consent. Additionally, education

records may be shared between UT Southwestern officials and officials at other institutions that administer or participate in joint programs or activities with UT Southwestern, in accordance with legitimate educational interests. For example, an education record about a student concurrently enrolled in UT Southwestern and another institution, or who receives services from UT Southwestern (such as the provision of an observership) and from another institution, may be disclosed by UT Southwestern to the other institution under this subsection. This includes services provided by UT Southwestern and institutions participating in distance education classes.

3. **Other Institutions.** UT Southwestern may release a student's education records to officials of other educational institutions where that student seeks or intends to enroll or is enrolled.
4. **Audit or Evaluation of Federal or State Education Programs.** The UT Board of Regents, authorized Federal representatives of the Comptroller General, the Attorney General, the Secretary of Education, and state and local educational authorities who are authorized by law to audit and evaluate a Federal or State supported education program, or to enforce Federal law which relates to such education programs, or their authorized representatives, may access an education record as required for the purposes of audit, evaluation, or enforcement.
5. **Financial Aid.** UT Southwestern may release an education record to persons or organizations in connection with a student's application for, or receipt of, financial aid to the extent necessary for such purposes as determining eligibility, amount, conditions, and enforcement of terms or conditions of such financial aid.
6. **State and Local Officials Pursuant to Statutes Concerning Juvenile Justice.** UT Southwestern may release education records to state and local officials that are authorized by statute to access those records.
7. **Organizations Conducting Studies.** Organizations conducting studies on behalf of UT Southwestern for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction may access education records for such studies, provided that: (i) the study is conducted in a manner which will not permit the personal identification of students or their parents by individuals other than representatives of the organization; and (ii) the information will be destroyed when no longer needed for the purposes of the study was conducted. The term "organizations" includes, but is not limited to, Federal, State, and local agencies and independent organizations.
8. **Accrediting Organizations.** Accrediting organizations may access an education record required to carry out accrediting functions.
9. **Designated Parents of a Tax Dependent.** A parent of a student who is a dependent for federal tax purposes, as defined by Section 152 of the Internal Revenue Code of 1954, may have access to the student's education records if the student has indicated in writing to UT Southwestern that his or her parents may have such access in accordance with the designation. If a tax dependent student's parents are divorced, both parents may have access to the student's education record, so long as at least one parent is designated by the student.

10. **Judicial Order or Subpoena.** Information concerning a student shall be released in response to a judicial order or lawfully issued subpoena. However, UT Southwestern must make reasonable efforts to notify the student of an order or subpoena before complying with it, except that UT Southwestern shall not notify a student of a subpoena if it is from a federal grand jury or is for law enforcement purposes and the subpoena or order provides that UT Southwestern shall not disclose to any person the existence or contents of the subpoena or any information furnished in response to the subpoena. In addition, education records may be disclosed to the U. S. Attorney General or his or her designee in response to an *ex parte* order concerning an authorized investigation or prosecution of domestic or international terrorism, without prior notice to the student.
11. **Health and Safety.** UT Southwestern may disclose student information in connection with an emergency in order to protect the health and safety of the student or others.
12. **Disciplinary Hearing Results.**
    - Disclosure to Victims: UT Southwestern may disclose to an alleged victim the final results of any disciplinary proceeding conducted by the institution against the alleged perpetrator of any crime of violence or the alleged perpetrator of any non-forcible sex offense (as those terms are defined in 34 C.F.R. 99.39), regardless of whether the alleged perpetrator was found in violation of UT Southwestern's rules or policies.
    - Disclosure to Third Parties: UT Southwestern may disclose the final results of any disciplinary proceeding against the alleged perpetrator of any crime of violence or non-forcible sex offense (as those terms are defined in 34 C.F.R. 99.39), if the alleged perpetrator is found in violation of UT Southwestern's rules or policies. Such disclosure will include only the name of the student, the violation committed, and any sanction imposed by UT Southwestern. Such disclosure may include the name of any other student, such as a victim or witness, only with the written consent of that other student.
    - Alcohol and Drug Violations: UT Southwestern may disclose to a student's parent or legal guardian information regarding any violation of any Federal, State, or local law, or of any rule or policy of the institution, governing the use or possession of alcohol or a controlled substance, regardless of whether that information is contained in the student's education records, if the student is under the age of 21 at the time of disclosure and UT Southwestern determines that the student has committed a disciplinary violation with respect to such use or possession.
13. **Defense of Litigation or Complaints against UT Southwestern.** If a student initiates legal action against the Medical Center, the institution may disclose to the court or agency with jurisdiction over the complaint the student's education records that are relevant to UT Southwestern's defense, with or without a court order or subpoena.
14. **On Consent of the Student.** UT Southwestern will release an education record to a third party, or allow a third party access to those records, if the student provides a verifiably valid consent that permits access by the third party.

De-Identified Records

When an education record has been stripped of all identifiers and/or aggregated data such that it is not possible to identify an individual who is the subject of the record, it is no longer an education record and is not subject to FERPA or this policy.

Students' Access to Their Education Records

A student has the right, upon written request to the Office of Enrollment Services, to review the student's own education records. The Office of Enrollment Services is the designated custodian for education records and will coordinate the inspection and review procedures. Education records covered by FERPA will be made available to the student within 45 days of the request. A student has the right to review all materials that are in the student's education records, except:

1. Financial information submitted by the student's parents;
2. Confidential letters and recommendations associated with admissions, employment or job placement, or honors, to which the student has waived rights of inspection and review or which were made part of the student's education records prior to January 1, 1975, provided those letters were collected under established policies of confidentiality and were used only for the purposes for which they were collected;
3. Education records containing information about more than one student, in which case UT Southwestern will permit access only to that part of the record that pertains to the inquiring student; and
4. Records that are subject to an attorney-client privilege which belongs to UT Southwestern.

Except where pre-empted by a specific provision of FERPA or where an official copy of a student's transcript is requested, a student's right to access and/or request a copy of his or her education records is co-extensive with the student's right to access records under the Texas Public Information Act (TPIA).

1. Requests by a student for education records that are available to a student under an applicable provision of the TPIA shall be processed by UT Southwestern in accordance with the TPIA.
2. Records pre-empted from availability under the TPIA by FERPA will be made available by the Office of Enrollment Services within 45 days of the request.
3. Official copies of transcripts or other academic records will not be released for students who have a delinquent financial obligation to UT Southwestern.

Record of Disclosures and Disclosure Requests

The Office of Enrollment Services will maintain with the student's education records a record of each disclosure request and each actual disclosure and will make this record available for

inspection by the student within 45 days of receipt of a written request. The Office of Enrollment Services will not maintain a record of disclosures:

- to the student;
- pursuant to the written consent of the student;
- pursuant to the exception for UT Southwestern officials with a legitimate educational interest;
- pursuant to a law enforcement subpoena when the issuing court or other issuing agency has ordered that the existence or the contents of the subpoena or the information furnished in response to the subpoena not be disclosed or the order is concerning an authorized investigation or prosecution of domestic or international terrorism; or of directory information.

Requests to Amend Records

A student who believes that an education record maintained about the student is inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA may request amendment of the record. This provision does not apply to academic decisions about a student's performance or to the outcome of any grievance, complaint, investigation, disciplinary proceeding, or appeal pursuant to other UT Southwestern policies.

1. **Informal Requests**. A student may request the opportunity to informally discuss amendment of the record with the dean. If agreement is reached with respect to the student's request, the appropriate records will be amended. If the record is not amended pursuant to the student's request, the dean will inform the student of the decision and of the student's right to request a formal hearing.
2. **Requests for a Formal Hearing**.
    a. A request for a formal hearing must be made in writing to the dean. Within a reasonable period of time after receiving such request, the dean will appoint a hearing officer and will inform the student of the date, place, and time of the hearing.
    b. A student may present evidence at the hearing relevant to the issues raised and may be assisted at the hearing by an advisor of the student's choice, which may be an attorney, at the student's expense. If the student is assisted by an attorney, the UT Southwestern administration will be assisted by an attorney from the Office of the Vice President for Legal Affairs and/or The University of Texas System Office of General Counsel. The hearing officer will be assisted by an attorney from the Office of the Vice President for Legal Affairs. The advisers may confer with and advise their respective party, but are not permitted to question witnesses, introduce evidence, and make objections, or present arguments to the hearing officer.
    c. The decision of the hearing officer will be based solely on the evidence presented at the hearing, and will consist of a written statement summarizing

the evidence and the reasons for the decision. The written decision will be delivered to all parties concerned within 30 days of the hearing.

d. If the decision is in favor of the student, the education records will be amended in accordance with the decision of the hearing officer.
e. If the decision is unsatisfactory to the student, the student may place with the education record a statement commenting on the information in the record or a statement setting forth any reasons for disagreeing with the decisions of the hearing officer, or both. The statement(s) will be maintained as part of the student's education records and released whenever the record(s) in question is disclosed.
f. A student who believes that the adjudication of a request to amend education records was unfair or otherwise not in accordance with FERPA or this policy may present a written appeal to the President of UT Southwestern within 30 days of receipt of the written decision of the hearing officer. The decision of the President is final.

Complaints

Complaints regarding alleged failures to comply with the provisions of FERPA may be submitted in

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Complaints regarding alleged failures to comply with the provisions of FERPA may be submitted in writing to the U.S. Department of Education, 400 Maryland Ave. SW, Washington, DC 20202-5920.

Facilities and Services

Bryan Williams, M.D. Student Center provides a range of offerings from structured programs to informal activities, such as intramural sports and sport clubs, group fitness programs, special events, and about 120 student organizations. The state-of-the-art recreational facility is available for students, residents, faculty, and staff. Membership for students is included in the student services fee. Admission requires a valid UT Southwestern ID card.

The **Animal Resources Center** is responsible for the production, procurement, conditioning, maintenance, and health status of animals used for experiments throughout the Medical Center. In addition, the ARC provides experimental surgical facilities to support animal research programs.

ARC veterinarians are available for consultation and guidance in the selection and use of animal models for research and teaching, conducting research, and teaching projects that utilize animals, and for the sources of specific animal species and strains.

The **Bioinstrumentation Resource Center** provides engineering and technical staff to help design and fabricate mechanical and electronic instrumentation and equipment, develop laboratory automation and data-acquisition systems, and consult on the specification and application of laboratory instrumentation. This research-support service center also offers calibration, testing, maintenance, and repair of laboratory equipment. Microcomputers and software programming for laboratory instrument control and engineering simulations can be obtained through the Center.

The **Division of Biostatistics** provides professional collaboration and programming in statistical analysis and database development on a fee basis for faculty, staff, and students at UT Southwestern and affiliated institutions. Assistance is available to investigators (one hour at no charge) preparing proposals for IRB or IACUC review.

Faculty statisticians collaborate with other university researchers to provide expertise in the design and analysis of research studies. These statisticians also offer credit and non-credit courses in statistical and computing topics. The division also has campus site licenses for SPSS

and SAS programs available for a fee to campus personnel. Technical support is provided for some computer-based statistical analysis programs, including SAS and SPSS.

Database collaborators provide a variety of services, including determining the best data management approach for a project, selecting an appropriate computer platform, designing forms, creating custom programs for data entry, developing reporting procedures, and retrieving information for subsequent statistical analysis.

The Division is responsible for campus testing and evaluation services and also provides expertise in creating and reading scannable forms, and carrying out and analyzing surveys.

The **Health Sciences Digital Library and Learning Center** resources and services are available from your desktop, laptop, mobile device, or in person by visiting two 24/7 access Library locations on campus:

- South Campus (main) Library in E2.3 (Florence Biomedical Building, Plaza level)
- North Campus Library in ND2.300

The Library's website is the primary access point, on campus and off-campus (using EZ Proxy), to resources as an affiliated UTSW faculty, staff, students, and researchers. These resources include:

- More than 92,000 e-books and more than 30,000 e-journal full-text subscriptions
- Specialized databases like ClinicalKey, Scopus, SciFinder, etc.
- Older print collection items located at the UT System Joint Library Facility in College Station, and accessible via interlibrary loan request
- Institutional repository to preserve and house conference presentations and posters.

Library locations include:

- Computer commons areas, including clinical and student workstations as well as productivity and statistical analysis software, printing, copying and scanning equipment
- Group and individual study rooms, tables, study carrels, quiet zone study areas, and comfortable couches with Wi-Fi access and vending machines for beverages and snacks in the South Campus location
- Physical archives collection with computer workstation available for research work
- Digital Media Production Studio with equipment and multimedia programs to record, edit, and watch digital audio and video content
- Presentation Practice Room with space and conference room equipment to review upcoming presentations with a small group of colleagues

The staff can assist with training (individual and group) in topics like EndNote, database searching, poster and presentation design, and web publishing. Contact Library staff directly

during business hours using the iHUB Chat feature found on the Library's website, 8 a.m. to 5 p.m., Monday through Friday or call 214-648-2001. Consult the 24/7 iHUB kiosk at both locations for basic Library-related frequently asked questions. Use the "Ask Us" form on the website or send an email Email after business hours.

Information Resources provides computing, voice, audiovisual, and data communication services to the UT Southwestern campus, including the hospital and clinics. The IR organization includes the following services: Administrative Computing manages data center operations, a centralized operating systems group, and the development of all administrative computing systems. Client Services oversees the UT Southwestern Help Desk and systems training. The development, management, and procurement of health care-related systems are managed by Clinical Information Services. Video production and teleconferencing are produced by IR's Medical Television Center. Network Services designs and manages an extensive data communication network, including local-area/wide-area networks, connectivity to affiliated institutions, Internet, and Internet2.

Information Resources works with UT Southwestern's information security officer to manage a comprehensive information security program as an integral component of all computing and communications activities. This program includes education, central access administration, disaster recovery, and the formulation of information security policies and procedures.

The **Office of International Affairs** ensures that foreign nationals holding nonimmigrant visas who are at UT Southwestern for the purpose of internships, academic training, research, or employment obtain and maintain legal temporary United States visa status and/or employment authorization, in accordance with federal law and UT Southwestern policies. The Office of International Affairs should be contacted as

The **Office of Medical Education** provides academic support for the schools. OME professionals collaborate with faculty to design and develop curricula, courses, and instructional materials; incorporate interactive learning techniques; and integrate technology into the curriculum via the Web Curriculum Group.

OME provides a comprehensive array of academic assistance services to students. These services include learning skills assessment and development, academic advice and counsel, supplemental peer tutoring, assistance with stress management, communication skills development, and situational referrals.

OME also administers two summer diversity-retention initiatives: the Summer Enrichment Program, a seven-week prematriculation program for incoming medical students; and a six-week MED 1901 course, which features directed studies in selected basic sciences for at-risk students experiencing academic difficulty.

OME helps faculty develop teaching skills, conduct educational research to improve teaching and learning, and develop grants to fund educational innovations.

Student Health Services and **Student Wellness and Counseling**, located in the in the Aston Building and the Student Support Services "S" Building respectively, help maintain and promote good health among all students at UT Southwestern. Confidential care is available for students with medical or emotional needs.

Students may call Student Health Services at 214-645-8690 for appointments. A health care provider is available full time by appointment. Students may call Student Wellness and Counseling Services confidentially at 214-645-8680 for an appointment with a clinician. A 24-hour, 7 day a week crisis line is also available only to UT Southwestern students at all times at this same number. The initial appointment at Student Wellness and Counseling is at no charge. Subsequent sessions are billed under insurance. There are no co-pays for students using the UT Southwestern student insurance under Academic Health Plans.

After hours and during weekends and holidays, students may call 214-645-8690 to reach the physician on call in General Internal Medicine. If a student is experiencing a medical emergency, he or she should report to the Emergency Care Center at UT Southwestern University Hospital or any emergency room of choice and identify himself or herself as a student of this institution. For urgent mental health care after hours, call 214-645-8680 to reach the 24-hour crisis line, staffed by off-site mental health clinicians trained in crisis management. Students already seen by Student Wellness can reach the clinician on call from Student Wellness or the crisis line staff.

All students are required to obtain and maintain health insurance coverage while enrolled at UT Southwestern Medical Center. The State of Texas has contracted with Academic Health Plans to provide an affordable insurance option for Texas students. However, students may choose any private insurance company of their liking. Students should be knowledgeable of the specific coverage of their individual health insurance plan. Co-pays are accepted at the time of service and the student's insurance will be billed for services in the Student Health and Student Wellness clinics. Students are responsible for deductibles and co-insurance. While UT Southwestern does not require students to have long-term disability insurance it is strongly recommended. Options for coverage are available on the Student Services website and include disability insurance offered by the American Medical Association, the Texas Medical Association, and DoctorDisability.

Medical records of all students seen in Student Health Services and Student Wellness and Counseling are confidential in accordance with applicable law and UT Southwestern policy.

The UT System and the Texas Department of Health require that students must be current on the required immunizations prior to matriculation. See Required Immunizations in the Student Information section for more information.

The **Transplant Services Center** is a clinical and academic service department that recovers, processes, stores, and distributes tissues, including but not limited to corneas, sclera, skin, musculoskeletal, and cardiovascular allografts. These tissue grafts are provided to physicians, hospitals, or surgery centers for transplant procedures which restore function, improve the quality of life and, in some cases, save lives. Other services, including autograft preservation/storage and assistance with The Joint Commission Tissue Standards compliance, are available to physicians and hospitals by individual arrangement.

Research and teaching tissues are available to the Medical Center faculty and to researchers outside the University on request. The Transplant Services Center strives to contribute to advancements in transplantation technology as well as clinical care through these cooperative efforts.

To meet the medical needs of the community, the Transplant Services Center promotes public and professional education to increase donor awareness. Transplant Services' mission is "to provide quality tissue grafts for transplantation, teaching, research, and medical need that is responsive and appropriate to both the recipient need and the donor family."

Online Catalog: Graduate School of Biomedical Sciences
https://www.utsouthwestern.edu/education/utsw-catalog/graduate/

Contains:

Forward
School Description
Accreditation
School Leadership

Graduate Degree Programs
Basic Science (section includes objectives, curriculum, facilities, financial assistance, admission requirements, requirements for Ph.D. degree, and common course descriptions)

- Biological Chemistry
- Biomedical Engineering
- Cancer Biology
- Cell and Molecular Biology
- Genetics, Development, and Disease
- Immunology
- Integrative Molecular and Biomedical Sciences
- Molecular Biophysics
- Molecular Microbiology
- Neuroscience
- Organic Chemistry

Clinical Science
- Clinical Psychology
- Clinical Sciences

Programs
- Postdoctoral Scholars Training Program
- Medical Scientist Training Program

Graduate Student information
- Admissions
  - Requirements
  - Essential Functions
  - Evaluation of Applications
- Registration
  - Student Responsibility
- Enrollment
- Special Graduate Students
- Concurrent Enrollment

Requirements for Graduate Degrees
General
Special Requirements for Master's
Special Requirements for Doctor of Philosophy
Graduation
Organizations
Graduate Student Organization

Foreword

The advancement of medical knowledge depends on the training of intellectually stimulated, innovative scientists who will serve as leaders of biomedical research in the future. The goal of UT Southwestern Graduate School of Biomedical Sciences is to give outstanding students the opportunity and the encouragement to investigate rigorously and to solve significant problems creatively in the biological, physical, and behavioral sciences.

To attain excellence in science, today's graduate students also must master the art of communication; therefore, students in the Graduate School of Biomedical Sciences have many opportunities to express their ideas orally and in writing to others within the scientific community.

The Graduate School has two Divisions: Basic Science and Clinical Science. These Divisions include the following specific areas of graduate studies: Biological Chemistry; Biomedical Engineering; Cancer Biology; Cell and Molecular Biology; Clinical Psychology; Clinical Sciences; Genetics, Development and Disease; Immunology; Integrative Molecular and Biomedical Sciences; Molecular Biophysics; Molecular Microbiology; Neuroscience; and Organic Chemistry. The Graduate School is continually developing new Programs, described on the website at www.utsouthwestern.edu/graduateschool/index.html.

Although enrolled in a specific Program area, a graduate student is not restricted to courses in that area. Exposure to a wide variety of academic disciplines is necessary to prepare the student for rapidly changing emphases in biomedical sciences. Graduate students at the medical center gain a wide perspective of contemporary biomedical science through interdisciplinary courses, seminars, and informal discussions involving students and faculty from all three component schools – UT Southwestern Graduate School of Biomedical Sciences, UT Southwestern Medical School, and UT Southwestern School of Health Professions.

The opportunity for graduate students and postdoctoral scholars to obtain advanced training in the laboratories of faculty members doing cutting-edge research fosters an ability to make significant contributions to the advancement of our understanding of the basis of disease processes that are the targets of contemporary medical research.

UT SOUTHWESTERN GRADUATE SCHOOL OF BIOMEDICAL SCIENCES

The members of the Graduate School faculty are also members of the faculty of either UT Southwestern Medical School or UT Southwestern School of Health Professions. The major portion of research for graduate degrees is performed in the laboratories of these faculty members.

As it has matured into a separate entity of academic distinction, the Graduate School of Biomedical Sciences has benefited from the talents of the basic-science faculty of the Medical School, noted for its innovative contributions to research and teaching methods. Twenty-two faculty members have been elected to membership in the National Academy of Sciences, and six have won the Nobel Prize. These and their fellow faculty members, while internationally recognized leaders in their fields of study, foster a uniquely close-knit research environment on a campus noted for its congeniality and collaborations. As UT Southwestern continues to grow, talented new faculty members are recruited to keep the Medical Center at the forefront of biomedical research.

Many faculty members are serving currently or have served recently as heads of national professional societies, as editorial board members of major scientific publications, and as members of study sections and scientific review panels under the auspices of the National Institutes of Health, the National Science Foundation, and other disease-focused nonprofit organizations.

Throughout their course of advanced instruction, students and postdoctoral scholars in the Graduate School remain in close contact with faculty members and enjoy the highly interactive atmosphere promoted by faculty at all ranks. Courses of study are designed to develop individual abilities in an atmosphere encouraging maximal intellectual interchange between students and mentors.

Graduates of UT Southwestern have obtained postdoctoral fellowships at institutions such as Harvard University, Rockefeller University, Johns Hopkins University, Yale University, University of California San Francisco, Washington University, and the Salk Institute and have gone on to faculty positions at Harvard University, Duke University, University of Pittsburgh, University of Pennsylvania, University of North Carolina at Chapel Hill, and UT Southwestern. Others play key roles in scientific administration and/or research at pharmaceutical corporations and private industry leaders. Two UT Southwestern alumni have been awarded a Nobel Prize (Joseph Goldstein, M.D., Medical School, 1966; and Linda Buck, Ph.D., Graduate School, 1980).

ACCREDITATION

Institutional accreditation for The University of Texas Southwestern Medical Center is contained within the “General” section of the catalog. Graduate School Programs with specific accreditations also may be cited within the Program sections.

SCHOOL LEADERSHIP

• Academic Administration

Charles M. Ginsburg, M.D.
Vice Provost and Senior Associate Dean for Education

Andrew Zinn, M.D., Ph.D.
Graduate School Dean

Stuart E. Ravnik, Ph.D.
Associate Dean

Nancy E. Street, Ph.D.
Associate Dean

Deirdre Brekken, Ph.D.
Assistant Dean

Lisa Gardner, Ph.D.
Assistant Dean

Natalie Lundsteen, Ph.D.
Assistant Dean

Christine Weirich, Ph.D.
Fellowship Coordinator

GRADUATE DEGREE PROGRAMS

DIVISION OF BASIC SCIENCE

Objectives

The scope of basic biomedical science encompasses areas as diverse as molecular biology on the one hand and physical chemistry on the other. The Division of Basic Science at UT Southwestern covers this broad range with specialized studies in biological chemistry, cancer biology, cell biology, cell regulation, chemistry, computational and systems biology, genetics and development, immunology, integrative molecular and biomedical sciences, mechanisms of disease, molecular biophysics, molecular microbiology, neuroscience, organic chemistry, and pharmacological sciences. The Programs are interdisciplinary by design, and each reflects an area of research strength of the Graduate School faculty.

The most important element shared by the Programs is an intense and exciting research experience in an active, productive, and critical scientific environment. This is the essence of graduate education at UT Southwestern. The goal of the Division is to provide both a broad,

integrated understanding of contemporary biomedical science and in-depth training in a specific area that the student chooses as his or her field of research.

Curriculum

During the first semester, students enrolled in the Division participate in the Core Curriculum, which offers an integrated approach to the study of biochemistry, biophysics, molecular biology, genetics, biological regulation, cell biology, and organismal biology appropriate for students with interests in any area of study. Coursework is supplemented by a rich schedule of seminars offered on wide-ranging topics. A substantial benefit of this approach is to prepare students for the increasingly interdisciplinary nature of biomedical science.

The standard first-year curriculum also includes completion of at least two laboratory rotations, each lasting approximately eight to 10 weeks. A student may select any member of the Division's faculty as a preceptor for each research rotation. The topics of research rotations can be as similar or wide-ranging as the student wishes. The rotations provide students opportunities to experience different research questions, approaches, and experimental techniques. Overall, the design of the curriculum also fosters exposure to many of our basic-science faculty who participate in one or more of the components of the first-year curriculum. Advice is available to students who desire guidance in choosing faculty mentors with whom to conduct their research.

In order to foster flexibility and allow an informed choice of the most appropriate Program for advanced study, a specific program and a dissertation research adviser are not selected until the end of rotations.

During the second half of the first semester and subsequent years of study, students immerse themselves in advanced didactic training organized by the faculty of individual Programs and focus on developing a research project. A coordinated design of advanced, specialized course work is another characteristic of the Division's integrative approach to graduate education. Advanced courses include those with pan-Program appeal, as well as a variety of more specialized courses. Curriculum Committees from all of the Programs work together to ensure the existence of an appropriate range of advanced courses, which are scheduled in a manner to facilitate accessibility. Although the Programs of the Division share a common administrative organization, each is distinct in terms of advanced course work and other degree requirements. Specific information is located in the individual Program descriptions.

Facilities

The laboratories of the faculty members of the Division of Basic Science, along with the support laboratories available for their use, provide access for students to the equipment and facilities required for contemporary biomedical research. A central computing facility, animal facilities, an electronic shop, and a comprehensive library are available. There are core research

facilities and services for DNA microarray analysis, molecular and cellular imaging, transgenic animals, flow cytometry, structural biology, protein chemistry, mass spectrometry, rapid biochemical kinetics, analytical ultracentrifugation, DNA sequencing, and antibody production.

First-year students are accommodated in a suite of rooms containing a lounge area with kitchen, a conference room, and administrative offices.

Financial Assistance

All students in the Division of Basic Science are supported during their Ph.D. studies. A competitive stipend adequate to cover living costs, tuition, and health insurance coverage is provided.

Requirements for Admission

Students wishing to enroll in any of the component Programs should apply to the Division of Basic Science. Applicants must submit a formal application, including a statement of educational and professional goals; a brief description of research experience; transcripts of undergraduate and prior graduate work; and a minimum of three letters of recommendation which must be from professors capable of assessing the applicant's scientific aptitude.

Foreign students whose native language is not English must submit TOEFL scores. Application information, including direct online application, is available on the UT Southwestern Web site, www.utsouthwestern.edu/graduateschool/index.html.

Students matriculate in the fall. Successful applicants generally have a GPA above 3.0 on a 4.0 scale. Most entering foreign students have had TOEFL scores higher than 100.

Under special circumstances, appropriately qualified students may be admitted to advanced standing in one of the Division's Programs without taking the first-year core curriculum; for example, a student with equivalent coursework and research experience gained at another institution.

Students enrolled in the Medical Scientist Training Program at UT Southwestern typically are admitted to advanced standing in one of the Programs based on satisfactory completion of the first two years of the Medical School curriculum and completion of the MSTP research rotations.

General Requirements for the Ph.D. Degree

It is a requirement of the Division that students satisfactorily complete a minimum of 21 credit hours of didactic coursework. The Core Curriculum and Ethics modules are to be supplemented by advanced didactic coursework compatible with the student's Graduate Program of choice. The advanced courses are usually completed by the end of the second year

of study and must be completed by the end of the third year. In addition, satisfactory completion of two laboratory-rotations projects is a Division requirement. Graduate Programs specify participation in Journal Clubs and seminars.

Each student must pass a qualifying examination conducted by the relevant Graduate Program. Satisfactory completion of the required coursework, the research rotations and a qualifying examination advances the student to candidacy for the degree. Completion of the dissertation research, its successful defense at an oral examination, and submission to UT Southwestern Graduate School of Biomedical Sciences of an approved electronic dissertation complete the requirements for the degree.

Course Descriptions

5284, 5285, & 5287 CORE CURRICULUM

The dissolution of many boundaries between the classical disciplines of the biological sciences prompted the faculty of the Division of Basic Science to develop a flexible and modern Core Curriculum that offers the broad education now necessary as a foundation for more specialized studies in biomedical research. The Core Curriculum presents first-year students with an integrated view of contemporary biology that begins at the level of individual molecules and progresses through an analysis of the complex structures and functions of differentiated cells.

The Core Curriculum focuses on basic genetics, macromolecular structure and function, and cellular organization. The curriculum places a major emphasis on developing the student's ability to understand and evaluate scientific papers and seminars. To this end, didactic teaching is augmented by frequent literature reviews and experimental design sessions. These activities encourage students to solve problems and make connections between and among diverse topics and experimental approaches. Significant time is spent analyzing the design, execution, and interpretation of experiments.

The course is 16 weeks long (August through December) and is letter-graded.

5197 & 5198 ETHICS

All graduate students are required to receive training in ethics and responsible conduct of research. The goal is to effect a culture change by incorporating ethics, survival skills, and professional development using several strategies. Courses offered in the fall and spring semesters of the first year and the fall semester of the second year include topics such as institutional policies and expectations, plagiarism, animal and human research, everyday scientific practice, authorship, data management, conflict of interest, technology transfer, and peer review.

5080 RESEARCH ROTATION

Students participate in two to three research experiences in different laboratory settings. Choice of laboratories is determined by the student, although advice from faculty is available. The goals of these laboratory rotations are to broaden exposure to experimental biology, to sharpen laboratory skills, and to facilitate the choice of an area for dissertation research. The student is expected to maintain a proper laboratory notebook; to participate actively in the design, conduct, and interpretation of experiments; and to provide a written or oral summary of the rotation experience. Each rotation is evaluated in writing by the faculty preceptor, and the course is graded pass or fail.

SPECIALIZED AND SUPPLEMENTAL CURRICULA

Courses in mathematical methods and advanced biostatistics are offered to all students whose research requires specialized curriculum. Information about these courses may be found at:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/specialized--supplemental-phd/computational-and-systems-biology/course-descriptions.html

Students wishing to gain competencies to prepare them to participate in translational research may apply to the Mechanisms of Disease and Translational Research special emphasis curriculum with their application for admission to the Division of Basic Science. Information about this curriculum may be found at:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/specialized--supplemental-phd/mechanisms-of-disease/

Courses Offered by all Division Programs

5094 RESEARCH

Students enroll in this course while conducting dissertation research prior to being admitted to candidacy. May be repeated for credit.

5095 CONTEMPORARY TOPICS

One or more courses are offered in the format of a journal club on topics related to the individual Program. These courses offer students an opportunity to keep abreast of recent research results, to sharpen critical appraisal skills, and to develop public-speaking skills. May be repeated for credit.

5096 DIRECTED STUDY

Selected faculty members of each Program provide tutorials for advanced analysis of a chosen topic. The format is determined by each Program but may incorporate any of the following: directed readings and discussions, lectures, laboratory work, and attendance at seminars and conferences. May be repeated for credit.

5097 SEMINAR

In this course each student presents discussions of a selected topic or of an aspect of his or her ongoing research. The interpretation of results and critical analysis of experimental data are emphasized. May be repeated for credit.

5098 THESIS RESEARCH

Students enroll in this course while conducting thesis research leading to a master's degree.

5099 DISSERTATION RESEARCH

Students enroll in this course while conducting research leading to a Ph.D. degree.

Advanced Didactic Course Descriptions

Although enrolled in a specific Program area, the graduate student is not restricted to courses in that area. Course requirements and descriptions are listed in the degree plans of each Graduate Program.

BIOLOGICAL CHEMISTRY

Chair, Graduate Program

Benjamin P. Tu, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Chuo Chen, Ph.D., Harvard University, 2001
David Chuang, Ph.D., Utah State University, 1970
David R. Corey, Ph.D., University of California, Berkeley, 1990
Russell DeBose-Boyd, Ph.D., University of Oklahoma Health Science Center, 1988
George N. DeMartino, Ph.D., University of Rochester, 1976

J. Russell Falck, Ph.D., Imperial College, London, 1974
Mark A. Lehrman, Ph.D., Duke University, 1982
Steven L. McKnight, Ph.D., University of Virginia, 1977
Carole R. Mendelson, Ph.D., Rutgers University, 1970
Kim Orth, Ph.D., UT Southwestern Medical Center, 1993
Margaret A. Phillips, Ph.D., University of California, San Francisco, 1988
Vanessa Sperandio, Ph.D., State University of Campinas, Brazil, 1995
Diana Tomchick, Ph.D., University of Wisconsin, Madison, 1990
Kosaku Uyeda, Ph.D., University of California, Berkeley, 1962
Noelle Williams, Ph.D., University of Virginia Health Sciences Center, 1996

Associate Professors

Igor Butovich, Ph.D., Institute of Physical Chemistry, Ukraine, 1985
Nicholas K. Conrad, Ph.D., Johns Hopkins University, 2001
Ivan D'Orso, Ph.D., Universidad Nacional De San Ma, 2003
Marie-Alda Gilles-Gonzalez, Ph.D., Massachusetts Institute of Technology, 1988
Wen-Hong Li, Ph.D., University of California, San Diego, 1996
Qinghua Liu, Ph.D., Baylor College of Medicine, 2000
Jeffrey McDonald, Ph.D., Indiana University, 2002
Anthony Michael, Ph.D., University of East Anglia (John Innes Institute), 1988
Uttam Tambar, Ph.D., California Institute of Technology, 2006
Benjamin P. Tu, Ph.D., University of California, San Francisco, 2003
Jin Ye, Ph.D., UT Southwestern Medical Center, 2000
Yonghau Yu, Ph.D., University of California, Berkley, 2006
Qing Zhong, Ph.D., UT Health Science Center, 2001

Assistant Professors

John Hulleman, Ph.D., Purdue University, 2008
Jennifer J. Kohler, Ph.D., Yale University, 2000
Weibo Luo, Ph.D., University of Magdeburg, Germany, 2007
David McFadden, M.D., Ph.D., UT Southwestern Medical Center, 2004
Peter Michaely, Ph.D., Duke University, 1995
Hamid Mirzaei, Ph.D., Purdue University, 2005
Yunsun Nam, Ph.D., Harvard University, 2006
Deepak Nijhawan, M.D./Ph.D., UT Southwestern Medical Center, 2005
Arun Radhakrishnan, Ph.D., Stanford University, 2002
Fei Wang, Ph.D., University of Massachusetts-Amherst, 2011
Kenneth Westover, M.D./Ph.D., Stanford University, 2007

Objectives

The Biological Chemistry Graduate Program at UT Southwestern offers state-of-the-art training in biochemistry and molecular biology with the goal of preparing students to make

significant research contributions at the interface of chemistry and biology. Faculty within the Program are actively engaged in researching a wide range of topics, including enzymology, RNA-mediated cellular processes, hormone receptors, metabolism, small-molecule control of cellular function, and drug discovery.

A characteristic of UTSW's scientific environment is the close proximity of basic science and clinical departments. The extensive collaborations of the Program faculty with faculty of clinical departments provide additional opportunities for students to contribute significantly to research with direct patient and medical relevance. Faculty members of the Program are also well recognized in their fields and maintain a lively communication with colleagues around the world. Numerous seminars by outstanding visiting scientists also are offered and are a vital component of the educational experience.

Special Requirements for Admission

Students wishing to join the Biological Chemistry Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. It is not necessary for a student within the Program to choose a mentor who is a faculty member of the Program, provided that the student has sound reasons for this choice. Students ordinarily will apply for formal admission to the Program after completing the first-year curriculum but may participate in the Program informally at any time after successful admission into the Division of Basic Science.

The Biological Chemistry Program is designed to train students in theory and techniques related to the molecular mechanisms that control cellular activities. Topics encompassed within the Program include gene regulation, RNA-mediated processes, protein interactions, enzyme functions, cellular metabolism, and drug discovery.

Curriculum

Students in the Biological Chemistry Graduate Program must satisfactorily complete the core curriculum offered in the fall term and two laboratory rotations. In the rest of the first year, students are expected to complete 7.5 credit hours of advanced course work, which require a grade average of B or better. Three credit hours consist of two required courses; the additional 4.5 hours may be selected from offerings by other Programs within the Division of Basic Science. For exceptional reasons, these course requirements may be altered with permission of the Program Chair. In addition, students participate in a student seminar and Journal Club each semester.

Near the end of the second year, students take a qualifying examination that consists of an oral defense of an original written research proposal. Admission to candidacy for the Ph.D. degree requires satisfactory performance in the core and advanced courses, the qualifying examination, and research.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/biological-chemistry/course-descriptions.html

Student Research Seminar

Weekly Works-In-Progress seminars provide a format in which students are encouraged to think critically about their own research and how it relates to related topics in biochemistry. Students receive critical feedback and suggestions from students and faculty with a range of biochemical expertise as well as gaining experience with formal presentations, a critical skill for a successful scientist. Several faculty mentors attend regularly and assist in facilitating discussion of the research presented. All track students are required to attend the WIP series weekly and to actively participate in the discussions, in addition to presenting their ongoing research once each year.

WIPs are designed to generate feedback and suggestions for students regarding their research from a diverse audience and to provide experience with formal presentations, a critical skill for successful scientists. Faculty mentors attend regularly and facilitate discussion of the research presented.

Journal Club presentations provide a forum for students to learn and describe an area of chemistry not directly related to their thesis topics. This forum aims to broaden students' knowledge and sophistication regarding important areas in synthetic chemistry. Topics are chosen by students in consultation with thesis advisers. Postdoctoral fellows also have an opportunity to present Journal Clubs.

Dissertation Committee

The Dissertation Committee oversees the scientific progress of students toward the completion of their degrees. Faculty members on the Committee are selected for expertise in the thesis area so they can contribute substantial intellectual insight in direction of the project. The Committee must have at least four members, including the thesis advisor, and at least two must be Program faculty. The Committee meets at least once a year to provide guidance and advice and to ensure a student's satisfactory progression toward a degree.

Qualifying Examination

The qualifying examination evaluates the student's ability to develop a hypothesis-based research proposal that addresses a specific question in modern biochemistry. The proposal must be presented in written and oral forms. To distinguish the student's abilities from those of the dissertation advisor, the student may not prepare a proposal related to his or her dissertation research or to research being carried out by other members of the student's laboratory. The examination tests the student's ability to defend work described in the proposal and to demonstrate an understanding of the underlying concepts, experimental approaches and designs, and their limitations. Advancement to Ph.D. candidacy depends on successful completion of the oral proposal examination. The qualifying examination process takes place during the late spring of the first year in the Program after course work is completed.

BIOMEDICAL ENGINEERING

(Joint Program with University of Texas at Arlington or University of Texas at Dallas)

Chair, UT Southwestern Graduate Program
W. Matthew Petroll, Ph.D.

Degrees Offered

Doctor of Philosophy

UTSW Faculty

Professors

Jeffrey A. Cadeddu, M.D., Johns Hopkins University, 1993
Changho Choi, Ph.D., Korea University, 1989
Robert C. Eberhart, Ph.D., University of California, Berkeley, 1965
Jinming Gao, Ph.D., Harvard University, 1996
Gerald Greil, M.D., Technical University of Munich, Germany, 1994; Ph.D., University of Tubingen, Germany, 2007
Connie C.W. Hsia, M.D., University of Toronto Faculty of Medicine, 1982
Michael E. Jessen, M.D., University of Manitoba, Canada, 1981
Steve Jiang, Ph.D., Medical College of Ohio, Toledo, 1998
Lawrence Lavery, D.P.M., Rosalind Franklin University of Medicine and Science, 1988
William Lee, M.D., Columbia University College of Physicians and Surgeons, 1967
Robert Lenkinski, Ph.D., University of Houston, 1973
Craig R. Malloy, M.D., University of California, San Francisco, 1977
Ralph P. Mason, Ph.D., University of Cambridge, England, 1986
Robert Mattrey, M.D., State University of New York at Buffalo, 1978
Paul Medin, Ph.D., University of California, Los Angeles
Orhan K. Oz, M.D., Ph.D., Stanford University, 1991
Ivan Pedrosa, M.D., Universidad Complutense de Madrid, 1994
W. Matthew Petroll, Ph.D., University of Virginia, 1989
Neil Rofsky, M.D., New York Medical College, 1985
A. Dean Sherry, Ph.D., Kansas State University, 1971
Rathan Subramaniam, M.D., Ph.D., University of Melbourne, 1997

Associate Professors

Shawn C. Burgess, Ph.D., UT Dallas, 1997
Jonathan Cheng, M.D., Baylor College of Medicine, 2000
Rajiv Chopra, Ph.D., University of Toronto, Canada, 2002
Xuejun Gu, Ph.D., Columbia University, 2009
Mohammed Hussain, M.D., University of Cambridge, 1999, Ph.D., King's College, London
Zoltan Kovacs, Ph.D., Lajos Kossuth University, Debrecen, Hungary, 1992

Wen-Hong Li, Ph.D., University of California, San Diego, 1996
Weiguo Lu, Ph.D., University of Wisconsin, Madison, 2001
Roderick W. McColl, Ph.D., University of Warwick, England, 1992
Alan Nugent, M.D., University of Melbourne, 1991
Matthias Peltz, M.D., UT Southwestern Medical Center, 1999
Debabrata Saha, Ph.D., University of Nebraska, 1997
Jay Schneider, M.D., Ph.D., Yale University School of Medicine, 1989, 1990
Baran Sumer, M.D., Case Western Reserve University, 2001
Xiankai Sun, Ph.D., University of New Hampshire, 2000
Masaya Takahashi, Ph.D., Hokkaido University, Japan
Yulong Yan, Ph.D., Nanjing University, China, 1988

Assistant Professors

Asaithamby Aroumougame, Ph.D., Banaras Hindu University, India, 1999
Ian R. Corbin, Ph.D., M.Sc., University of Manitoba, 2002
Reto Fiolka, Ph.D., ETH, Zurich, 2009
Matthew A. Lewis, Ph.D., UT Southwestern Medical Center, 2002
Jacques Lux, Ph.D., University of Strasbourg, France, 2009
Ananth Madhuranthakam, Ph.D., Mayo Graduate School, 2005
Hamid Mirzaei, Ph.D., Purdue University, 2005
Albert Montillo, Ph.D., University of Pennsylvania, 2004
Animesh Tandon, M.D., M.S., University of Michigan Medical School, 2008
Elena Vinogradov, Ph.D., Weizmann Institute of Science, Israel, 2003
Jing Wang, Ph.D., State University of New York at Stony Brook, 2006
Che Xu, Ph.D., UT Arlington, 2008

Objectives

Biomedical Engineering (BME) is an interdisciplinary science that employs engineering methods and approaches to define and solve biological problems. The UT Southwestern Medical Center BME Program has an emphasis on the development of advanced procedures and technologies that facilitate both basic biomedical research and the detection, diagnosis, and treatment of disease and disability. Biomedical Engineering is part of a joint graduate program between UT Southwestern, UT Arlington, and UT Dallas. In addition, the Program has close ties with a number of high-tech industries in the Dallas/Fort Worth area, thus offering a robust set of resources for biomedical research and education.

The Biomedical Engineering Program has more than 40 faculty members from both basic science and clinical departments at UT Southwestern, whose research covers a broad range of fundamental and applied bioengineering research. The BME Program promotes a collaborative, multidisciplinary environment, with a focus on providing the highest-quality education and training for our students.

The UT Southwestern BME Program features four research and teaching tracks:

* Biomedical and Molecular Imaging
* Biomaterials, Mechanics, and Tissue Engineering
* Molecular and Translational Nanomedicine
* Medical Physics

Curriculum

Ph.D. students are required to complete a minimum of 27 hours of advanced coursework, which includes track-specific engineering and life science courses. In addition, students attend the monthly biomedical engineering seminar series (given by faculty), and a weekly Works-In-Progress course in which students have the opportunity to present and discuss their own research. First-year students complete a Core Curriculum that includes track-specific courses, at least two laboratory rotations, and training in the responsible conduct of research.

All doctoral students must pass three examinations. Exam I is a qualifying exam, usually given during their second year. It consists of a written examination, based on a broad problem in the area of the student's research, and an oral examination in which the student critiques and defends their written response. Successful completion of the qualifying examination is required to advance to candidacy for the PhD. Exam II consists of a detailed written prospectus of the proposed dissertation research and an oral defense of the proposal. Exam III is the final defense of the completed dissertation.

A Supervisory Research Committee is formed for each doctoral candidate. This Committee reviews and evaluates the student's progress and participates in the proposal and dissertation defenses.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/biomedical-engineering/curriculum.html

Because of the interdisciplinary nature of the Program, students may also take other courses from the Division of Basic Science at UT Southwestern, as well as graduate level classes at *UT Arlington and **UT Dallas. Thus, the above list represents only a portion of the many courses available to students.

* http://catalog.uta.edu/engineering/bio/graduate/#masterstext)

** http://catalog.utdallas.edu/now/graduate/courses/bmen)

CANCER BIOLOGY

Chair, Graduate Program

Rolf A. Brekken, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

John M. Abrams, Ph.D., Stanford University, 1989
Rolf A. Brekken, Ph.D., UT Southwestern Medical Center, 1999
James Brugarolas, M.D., University of Navarra, Spain, 1993; Ph.D., Massachusetts Institute of Technology, 1998
Diego Castrillon, M.D., Ph.D., UT Southwestern Medical Center, 1996
David Chen, Ph.D., University of Missouri, Columbia, 1978
Cheng-Ming Chiang, Ph.D., University of Rochester, 1991
Melanie H. Cobb, Ph.D., Washington University, St. Louis, 1976
David R. Corey, Ph.D., University of California, Berkeley, 1990
Gaudenz Danuser, Ph.D., Swiss Federal Institute of Technology, 1997
Ralph DeBerardinis, M.D., Ph.D., University of Pennsylvania, 2000
Jef K. DeBrabander, Ph.D., University of Ghent, Belgium, 1993
Beatriz M.A. Fontoura, Ph.D., New York University School of Medicine, 1996
Jinming Gao, Ph.D., Harvard University, 1996
Robert E. Hammer, Ph.D., Wayne State University, 1981
Jer-Tsong "J.T." Hsieh, Ph.D., University of Wisconsin, Madison, 1989
Jin Jiang, Ph.D., Columbia University, 1992
Beth Levine, M.D., Cornell University Medical College, 1986
Guo-Min Li, Ph.D., Wayne State University, 1991
Ralph P. Mason, Ph.D., University of Cambridge, England, 1986
Joshua Mendell, M.D., Ph.D., Johns Hopkins University, 2004
John D. Minna, M.D., Stanford University, 1967
Sean Morrison, Ph.D., Stanford University, 1996
Jerry Y. Niederkorn, Ph.D., University of Arkansas, 1977
Ganesh Raj, M.D., Ph.D., Jefferson Medical School, 1997
Theodora Ross, M.D., Ph.D., Washington University, St. Louis, 1993
Michael G. Roth, Ph.D., University of Alabama at Birmingham, 1982
Jerry W. Shay, Ph.D., University of Colorado at Boulder, 1975
Stephen Skapek, M.D., Duke University School of Medicine, 1988
Michael Story, Ph.D., Colorado State University, 1989
Woodring E. Wright, Ph.D., M.D., Stanford University School of Medicine, 1974, 1975

Associate Professors

James Amatruda, M.D., Ph.D., Washington University, St. Louis, 1993
Sandeep Burma, Ph.D., National Institute of Immunology, India, 1995
Benjamin Chen, Ph.D., Ohio State University, 1996
Amyn Habib, M.D., Dow Medical College, Pakistan, 1986
Jun-Shen "Lily" Huang, Ph.D., University of California, San Diego, 1997
Ralf Kittler, Ph.D., Dresden University of Technology & Max Planck Institute for Molecular Cell Biology and Genetics, 2006
Pier Paolo Scaglioni, M.D., University of Modena, Italy, 1989
Joachim Seemann, Ph.D., Max-Planck Institute, Germany, 1996
Yihong Wan, Ph.D., University of Colorado Health Science Center, Denver, 2002
Angelique Whitehurst, Ph.D., UT Southwestern Medical Center, 2004
Thomas Wilkie, Ph.D., University of Washington, 1986
Yang Xie, Ph.D., University of Minnesota, 2006
Qing Zhong, M.D., Peking Union Medical College, 1995; Ph.D., UT Health Science Center, San Antonio, 2001

Assistant Professors

Todd Aguilera, M.D., Ph.D., UC San Diego, 2011
Ezra Akbay, Ph.D., UT Southwestern Medical Center, 2010
Asaithamby Aroumougame, Ph.D., Banaras Hindu University, India, 1999
Maralice Conacci-Sorrell, Ph.D., Weizmann Institute of Science, Israel, 2005
Ian Corbin, Ph.D., University of Manitoba, Canada, 2002
Anthony Davis, Ph.D., UT Southwestern Medical Center, 2006
Jenna Jewell, Ph.D., Indiana University, Indianapolis, 2010
Daehwan Kim, Ph.D., University of Maryland, 2013
James Kim, M.D., Ph.D., University of Rochester, NY, 1999
Weibo Luo, Ph.D., Otto-von-Guericke University of Magdeburg, Germany, 2007
Srinivas Malladi, Ph.D., UT Austin, 2010
Ram Mani, Ph.D., Jawaharlal Nehru Center for Advanced Scientific Research, India, 2006
Elisabeth Martinez, Ph.D., Georgetown University, 2002
Saikat Mukhopadhyay, M.D., Banaras Hindu University, 2002; Ph.D., Brandeis University, 2008
Kathryn A. O'Donnell, Ph.D., Johns Hopkins University, 2005
Daniel Siegwart, Ph.D., Carnegie Mellon University, 2008
Richard Wang, M.D., Ph.D., Stanford University, 2007
Zhigao Wang, Ph.D., UT Southwestern Medical Center, 2004
Kenneth Westover, M.D., Ph.D., UT Southwestern Center, 2007
Angelique Whitehurst, Ph.D., UT Southwestern Medical Center, 2004
Jian Xu, Ph.D., University of California, Los Angeles, 2008
Hasan Zaki, Ph.D., Kumamoto University, Japan, 2007
Hao Zhu, M.D., Harvard Medical School, 2005

Objectives

The Cancer Biology Graduate Program provides multidisciplinary training for the student interested in pursuing a research career in any aspect of cancer biology. The Program offers students state of the art training and research opportunities in the molecular and cellular aspects of cancer, the use of model organisms, genomics, mammalian biology and organ systems, cancer therapeutics and drug development relevant to cancer biology. The broad range of interests and expertise of faculty members enables students to experience multiple aspects of cancer research while developing deep knowledge and proficiency in areas germane to their dissertation research. Areas of expertise in Program labs include tumor microenvironment, drug screening and development, apoptosis, tumor immunology, DNA repair, metastasis, metabolism and signal transduction, among others.

A characteristic of the scientific environment at UT Southwestern is the connection and proximity of basic and clinical Departments and faculty. This fosters a collaborative environment where Program trainees are exposed to clinical faculty and have opportunities to contribute to translational research projects. The collaborative environment on campus often extends beyond campus as many of our faculty maintain robust collaboration with laboratories around the globe. In addition to collaborative opportunities, trainees can attend seminars from outstanding visiting scientists through Cancer Center sponsored and Departmental seminars and symposia.

Special Requirements for Admission

Students wishing to join the Cancer Biology Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. It is not necessary for a student within the Program to choose a mentor who is a faculty member of the Program, provided that the student has sound reasons for this choice. Students generally will apply for admission to the Program after completion of the first-year curriculum, but may participate in the Program informally at any time after successful admission into the Division of Basic Science.

Curriculum

The Cancer Biology Graduate Program provides advanced courses, seminars, and supervised research based upon successful completion of the first-year Core Course in the Division of Basic Science. Each student entering the Program must successfully complete two advanced courses that provide a core of knowledge important to any cancer biologist: Cancer Biology I – Hallmarks of Cancer and Cancer Stem Cells; and Cancer Biology II – Advanced Concepts in Cancer Biology. In addition, students must enroll in 4.5 credit hours of course work offered by any of the graduate Programs in the Division of Basic Science. Finally, Cancer Biology students participate in an independent study course and must complete and pass a Cancer Biology Core Competency exam in the Fall of their second year in Graduate School. Passing the Core Competency exam and completion of Cancer Biology III – Cancer Biology Qualifying Exam and Hypothesis Driven Grant Writing are designed to prepare students for success in their qualifying exam, which will take place at the end of the second year of Graduate School. The qualifying

exam consists of a written research proposal that is critiqued by and orally defended before an examination committee of Program faculty.

Successful completion of this examination is a prerequisite for admission to candidacy for the Ph.D. degree.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/cancer-biology/course-descriptions.html

Student Works-In-Progress

Each semester, students participate in a "Works-in-Progress" seminar where they present their own work and listen to presentations from their peers. Students are encouraged to actively participate and engage presenters. The WIPs seminar series is vital to the Program and attendance is mandatory.

CELL AND MOLECULAR BIOLOGY

Chair, Graduate Program

Angelique Whitehurst, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Joseph P. Albanesi, Ph.D., Duke University, 1980
Michael S. Brown, M.D., University of Pennsylvania, 1966
Elizabeth Chen, Ph.D., Stanford University, 1998
Cheng-Ming Chiang, Ph.D., University of Rochester, 1991
Melanie H. Cobb, Ph.D., Washington University, St. Louis, 1976
Gaudenz Danuser, Ph.D., Swiss Federal Institute of Technology, 1997
Russell DeBose-Boyd, Ph.D., University of Oklahoma Health Science Center, 1998
Joseph L. Goldstein, M.D., UT Southwestern Medical Center, 1966
Joel M. Goodman, Ph.D., University of Southern California, 1980
Carla Green, Ph.D., University of Kansas Medical Center, 1991
Jer-Tsong "J.T." Hsieh, Ph.D., University of Wisconsin, Madison, 1989
Steven Kliewer, Ph.D., University of California, Los Angeles, 1990
Mark A. Lehrman, Ph.D., Duke University, 1982
David J. Mangelsdorf, Ph.D., University of Arizona, 1987

Carole R. Mendelson, Ph.D., Rutgers University, 1970
John D. Minna, M.D., Stanford University, 1967
Katherine Phelps, Ph.D., University of Colorado, Boulder, 1981
Elliott M. Ross, Ph.D., Cornell University, 1975
Michael G. Roth, Ph.D., University of Alabama, Birmingham, 1982
David W. Russell, Ph.D., University of North Carolina at Chapel Hill, 1980
Philipp E. Scherer, Ph.D., University of Basel, Switzerland, 1992
Sandra Schmid, Ph.D., Stanford University, 1985
Dean P. Smith, M.D., University of Utah, 1986; Ph.D., University of California, San Diego, 1992
Lance Terada, Ph.D., University of Hawaii, Honolulu, 1983
Helen L. Yin, Ph.D., Harvard University, 1976
Hongtao Yu, Ph.D., Harvard University, 1995

Associate Professors

Neal Alto, Ph.D., Oregon Health & Science University, 2003
Jun-Shen "Lily" Huang, Ph.D., University of California, San Diego, 1997
Daniela Nicastro, Ph.D., Ludwig-Maximilians-Universitat, Munich, 2000
Daniel Rosenbaum, Ph.D., Harvard University, 2005
Joachim Seemann, Ph.D., Max-Planck Institute for Biochemistry, Germany, 1996
Angelique Whitehurst, Ph.D., UT Southwestern Medical Center, 2004
Gang Yu, Ph.D., University of Calgary, Canada, 1996

Assistant Professors

James Collins, Ph.D., Washington University, St. Louis, 2008
Maralice Conacci-Sorrell, Ph.D., Weizmann Institute of Science, 2005
Konstantin Doubrovinski, Ph.D., University of Saarland, Saarbrucken, Germany, 2004
Mike Henne, Ph.D., University of Cambridge, 2009
Khuloud Jaqaman, Ph.D., Indiana University, Bloomington, 2003
Jen Liou, Ph.D., University of California, San Francisco, 2001
Denise Marciano, Ph.D., Rockefeller University, 1999; M.D., Cornell University Medical College, 2001
Prashant Mishra, M.D., Ph.D., UT Southwestern Medical, 2007
Michael Reese, Ph.D., University of California, San Francisco, 2006
Vincent Tagliabracci, Ph.D., Indiana University, 2010
Fei Wang, Ph.D., University of Massachusetts, Amherst, 2008
Dawn Wetzel, M.D., Ph.D., Washington University School of Medicine, 2005

Description of the Discipline

The Graduate Program in Cell and Molecular Biology provides training opportunities for students interested in the study of cellular functions ranging from molecular mechanisms to functional behavior. The Program emphasizes an interdisciplinary approach to research, which covers a variety of areas, including but not limited to:

- Cell biology
- Molecular biology
- Pharmacology
- Physiology
- Systems biology
- Bioinformatics
- Biomathematics

Advanced courses, Journal Clubs, symposia, Works-In-Progress seminars and intensive training in the development of independent research projects prepare students for completion of the Ph.D. degree and future success in the career of choice. This is facilitated by diverse, active, and collaborative faculty committed to mentoring the next generation of scientists.

Special Requirements for Admission

Students wishing to join the Cell and Molecular Biology Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. Usually students seek enrollment in their second semester, following completion of a set of research rotations and selection of a mentor who will assist in the development of the research project for the Ph.D. While most students do their doctoral research with a faculty member of the Program, Cell and Molecular Biology students may do their doctoral research with suitable mentors from other Programs. Prior to formal entry, the Graduate Program Chair will occasionally encourage a student to consult with faculty members to ensure that this Graduate Program is the most appropriate for the student's interests.

Curriculum

All students in the Cell and Molecular Biology Graduate Program must satisfactorily complete the core curriculum offered in the fall term including the cell thread and two laboratory rotations. In the remainder of the first year, students are expected to complete 7.5 credit hours of advanced course work, which require a grade-point average of B or better. Three credit hours consist of two required courses; the additional 4.5 hours may be selected from offerings by other programs within the Division of Basic Science. For exceptional reasons, these course requirements may be altered with permission of the Program Chair. In addition, students participate in a student seminar and Journal Club each semester.

Near the end of the second year, students take a qualifying examination that consists of an oral defense of a written research proposal. Admission to candidacy for the Ph.D. degree requires satisfactory performance in the core, advanced courses, the qualifying examination and research.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/cell-molecular/course-descriptions.html

GENETICS, DEVELOPMENT, AND DISEASE

Chair, Graduate Program

Ondine Cleaver, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

John M. Abrams, Ph.D., Stanford University, 1989
Linda A. Baker, M.D., University of Louisville, 1989
James Brugarolas, M.D., University of Navarra, Spain, 1993; Ph.D., Massachusetts Institute of Technology, 1998
Ezra Burstein, M.D., Cayetano Heredia Peruvian University, 1994
Elizabeth Chen, Ph.D., Stanford University, 1998
Zhijian "James" Chen, Ph.D., State University of New York at Buffalo, 1991
Jonathan Cohen, Ph.D., University of Cape Town, South Africa, 1989
Ralph J. DeBerardinis, Ph.D., M.D., University of Pennsylvania, 1998, 2000
Christine Kim Garcia, M.D., Ph.D., UT Southwestern Medical Center, 1996
Jonathan M. Graff, M.D., Ph.D., Duke University, 1990
Robert E. Hammer, Ph.D., Wayne State University, 1981
Mark J. Henkemeyer, Ph.D., University of Wisconsin, Madison, 1990
Helen H. Hobbs, M.D., Case Western Reserve University School of Medicine, 1979
Jin Jiang, Ph.D., Columbia University, 1992
Jane E. Johnson, Ph.D., University of Washington, 1988
Helmut J. Krämer, Ph.D., University of Cologne, Germany, 1989
W. Lee Kraus, Ph.D., University of Illinois at Urbana-Champaign, 1994
Rueyling Lin, Ph.D., Baylor College of Medicine, 1993
Yi Liu, Ph.D., Vanderbilt University, 1995
Joshua Mendell, M.D., Ph.D., Johns Hopkins University, 2004
Berge Minassian, M.D., McGill University, 1992
Sean Morrison, Ph.D., Stanford University, 1996
Eric N. Olson, Ph.D., Wake Forest University, 1981
Duojia Pan, Ph.D., University of California Los Angeles, 1993
Jerry W. Shay, Ph.D., University of Colorado at Boulder, 1975
Stephen Skapek, M.D., Duke University, 1988
Carol Wise, Ph.D., UT Southwestern Medical Center, 1991
Woodring E. Wright, Ph.D., M.D., Stanford University School of Medicine, 1974, 1975

Associate Professors

Sandeep Burma, Ph.D., National Institute of Immunology, India, 1995
Michael Buszczak, Ph.D., Yale University, 2002
Thomas Carroll, Ph.D., UT Austin, 1999
Ondine Cleaver, Ph.D., UT Austin, 1999
Jenny Hsieh, Ph.D., Johns Hopkins University, 2000
Taekyung Kim, Ph.D., University of Medicine and Dentistry of New Jersey, 2000
Zhi-Ping Liu, Ph.D., UT Southwestern Medical Center, 1993
Hesham Sadek, M.D., Ph.D., Ain Shams University, 1995 and Case Western Reserve 2004
Jay Schneider, M.D., Ph.D., Yale University School of Medicine, 1989
Thomas M. Wilkie, Ph.D., University of Washington, Seattle, 1986
Jiang Wu, Ph.D., UT Austin, 2001
Chao Xing, Ph.D., Case Western Reserve University, 2006
Chun-Li Zhang, Ph.D., UT Southwestern Medical Center, 2002

Assistant Professors

Laura Banaszynski, Ph.D., Stanford University, 2007
Maria Chahrour, Ph.D., Baylor College of Medicine, 2009
James Collins, Ph.D., Washington University, 2008
Michael Dellinger, Ph.D., University of Arizona, 2008
Peter Douglas, Ph.D., University of North Carolina, 2009
Rene L. Galindo, M.D., Ph.D., UT Southwestern Medical Center, 2000
Rana Gupta, Ph.D., University of Pennsylvania, 2006
Dustin Hancks, Ph.D., University of Pennsylvania, 2011
Gary Hon, Ph.D., University of California-San Diego, 2009
Jenna Jewell, Ph.D., Indiana University, 2010
Ning Liu, Ph.D., University of Wisconsin-Madison, 2003
Denise Marciano, Ph.D., Rockefeller University, 1999; M.D., Cornell University Medical College, 2001
Saikat Mukhopadhyay, M.D., Banares Hindu University, 2002; Ph.D., Brandeis University, 2008
Nikhil Munshi, Ph.D., M.D., Columbia University, 2001, 2003
Kathryn A. O'Donnell, Ph.D., Johns Hopkins University, 2005
Stuart E. Ravnik, Ph.D., University of Washington, Seattle, 1991
Vincent Tagliabracci, Ph.D., Indiana University, 2010
Yingfei Wang, Ph.D., University of Magdeburg, Germany, 2007
Zhigao Wang, Ph.D., UT Southwestern Medical Center, 2004
Jian Xu, Ph.D., University of California, Los Angeles, 2008
Hao Zhu, M.D., Harvard Medical School, 2005

Objectives

The Genetics, Development, and Disease Graduate Program provides education in inter-disciplinary studies relating to growth, development, and inheritance. Fundamental principles

in genetics and their application to the dissection of biological problems are emphasized. Training is focused on high-caliber original research and a discussion-based curriculum. The goal of this Program is to guide students to become outstanding and rigorous scientists, leading to independent careers in academics or industry.

Special Requirements for Admission

Students wishing to join the Genetics, Development, and Disease Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. Usually students seek enrollment in the Program toward the end of the first year of study, following completion of the set of research rotations and selection of a mentor.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/genetics-and-development/course-descriptions.html

Students complete advanced course work and qualify for candidacy by the end of the second year. All students participate in Works-In-Progress seminars and Journal Clubs. In the second year of study, each student takes a qualifying exam by preparing an original research proposal and orally defending it before a panel of Program faculty.

IMMUNOLOGY

Chair, Graduate Program

Anne Satterthwaite, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Bruce Beutler, M.D., University of Chicago, 1981
Ezra Burstein, M.D., Cayetano Heredia Peruvian University, 1994
Zhijian “James” Chen, Ph.D., State University of New York at Buffalo, 1991
Yang-Xin Fu, M.D., Ph.D., Shanghai Medical University, 1983; University of Miami, 1990
Lora Hooper, Ph.D., Washington University, St. Louis, 1996
Christopher Y.H. Lu, M.D., Harvard Medical School, 1974
James Malter, M.D., Washington University, St. Louis, 1983
Jerry Y. Niederkorn, Ph.D., University of Arkansas, 1977
Roger Rosenberg, M.D., Northwestern University Medical School, 1964
Edward K. Wakeland, Ph.D., University of Hawaii, 1976

Associate Professors

Lindsay Cowell, Ph.D. North Carolina State University, 2000
J. David Farrar, Ph.D., UT Southwestern Medical Center, 1996
Michelle Joubert Gill, Ph.D., M.D., Louisiana State University, 1993, 1995
Andrew Koh, M.D., Harvard University, 1996
Nancy L. Monson, Ph.D., University of Wisconsin, Madison, 1996
Chandrashekhar Pasare, Ph.D., National Institute of Immunology, India, 2000
Anne Satterthwaite, Ph.D., Harvard University, 1993
Nicolai S. C. van Oers, Ph.D., McGill University, Canada, 1990
Nan Yan, Ph.D., UT Austin, 2006
Chengcheng "Alec" Zhang, Ph.D., University of Illinois at Urbana, 1999

Assistant Professors

Dustin Hancks, Ph.D., University of Pennsylvania, 2011
Tiffany Reese, Ph.D., University of California, San Francisco, 2007
John Schoggins, Ph.D., Cornell University, 2007
Michael Shiloh, M.D., Ph.D., Cornell University, 2001
Nancy E. Street, Ph.D., UT Southwestern Medical Center, 1987
Ann Stowe, Ph.D., University of Kansas Medical Center
Sebastian Winter, Ph.D., University of California, 2011
Hasan Zaki, Ph.D, Kumamoto University, Japan, 2007

Description of the Discipline

Since 1975, the Medical Center has offered a Program through UT Southwestern Graduate School of Biomedical Sciences leading to a Ph.D. in Immunology. This course of study is interdisciplinary, with a faculty composed of members from the Medical School's Departments of Biochemistry, Dermatology, Immunology, Internal Medicine, Microbiology, Neurology, Ophthalmology, Pathology, and Surgery.

A distinguishing characteristic of this Graduate Program is its multidisciplinary approach. General areas of research include a variety of topics:

1) Innate immunity, inflammation, innate control of adaptive immunity, and mucosal immunology;

2) Autoimmunity, histocompatibility antigens and disease, immune response to cancer, lymphocyte activation and signaling, cytokines, T- and B-cell interactions, and regulation of immunoglobulin synthesis;

3) Transplantation immunology and graft-versus-host reactions

Objectives

The broadly stated objective of the Program is to train each student to function as a professional in the scientific community. The Program specifically endeavors to offer each trainee the opportunity to acquire a firm and substantial understanding of the broad field of immunology as well as the opportunity to develop certain research skills and tools that will allow him or her to advance knowledge in the field of immunology and to develop the teaching capabilities that are essential for a viable academic career.

Curriculum

The field of immunology encompasses many broad areas related to basic science and medicine. A major strength of the Immunology Graduate Program resides in its large faculty of individuals whose research interests include innate immunity, immunology of infection, disease, mucosal immunology, tumor immunology and immunotherapy, genetics of immune response diversity, and clinical immunology. This offers students a broad-based education in all current immunologic concepts and techniques so they can become competitive for future opportunities.

During the first semester, students participate in the Core Curriculum of the Division of Basic Science and the Fundamentals of Immunology course. Students then have the opportunity to gain a broad-based scientific background in areas of modern biology. Students also have an opportunity to attend Journal Clubs, Works-In-Progress seminars, and the Excellence in Immunology seminars during their first semester and are required to attend once they join the Program.

After completing the Core Curriculum and joining the Immunology Graduate Program, a variety of courses are offered.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/immunology/course-descriptions.html

Each of these courses focuses on integrating material from basic molecular biology, cell physiology, and clinical pathophysiology. The format for these courses involves didactic information and reading of the original literature followed by critical discussion in an informal setting.

The Immunology Program has a weekly seminar series in which all advanced graduate students present their research on an annual basis to the entire Immunology Program. This experience affords students an opportunity to perfect their skills in oral presentation and communication to a sophisticated audience. Teaching opportunities also are available.

During the fall of the second year, students are required to pass a qualifying examination for admission to candidacy for the Ph.D. The qualifying examination consists of a written proposal and its oral defense. Successful completion of the qualifying examination is required to advance to Ph.D. candidacy.

A Supervisory Research Committee is appointed for those candidates. This Committee reviews and evaluates the student's progress and, upon completion of the dissertation based on original research and the student's public presentation of the work, participates in the final oral examination of the student.

INTEGRATIVE MOLECULAR AND BIOMEDICAL SCIENCES

Chair, Graduate Program

Yi Liu, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Ilya B. Bezprozvanny, Ph.D., Institute of Cytology Russian Academy of Sciences, 1992
Rolf A. Brekken, Ph.D. UT Southwestern Medical Center, 1999
Michael S. Brown, M.D., University of Pennsylvania School of Medicine, 1966
George N. DeMartino, Ph.D., University of Rochester, 1976
Joel K. Elmquist, D.V.M., Ph.D., Iowa State University, 1992, 1993
Christine Kim Garcia, M.D., Ph.D., UT Southwestern Medical Center, 1996
Joseph A. Garcia, M.D., Ph.D., University of California, Los Angeles, 1993
Dwight C. German, Ph.D., University of Oklahoma Health Sciences Center, 1972
Joseph L. Goldstein, M.D., UT Southwestern Medical Center, 1966
Frederick Grinnell, Ph.D., Tufts University School of Medicine, 1970
Joachim Herz, M.D., University of Heidelberg, Germany, 1983
Joseph A. Hill, M.D., Ph.D., Duke University, 1987
Jay D. Horton, M.D., University of Iowa College of Medicine, 1988
W. Lee Kraus, Ph.D., University of Illinois at Urbana-Champaign, 1994
Yi Liu, Ph.D., Vanderbilt University, 1995
Mala Mahendroo, Ph.D., UT Southwestern Medical Center, 1992
David J. Mangelsdorf, Ph.D., University of Arizona, 1987
Steven L. McKnight, Ph.D., University of Virginia, 1977
Carole R. Mendelson, Ph.D., Rutgers University, 1970
Lisa Monteggia, Ph.D., University of Illinois at Urbana-Champaign, 1991
Eric N. Olson, Ph.D., Wake Forest University, 1981
Duojia Pan, Ph.D., University of California, Los Angeles, 1993

Philipp E. Scherer, Ph.D., University of Basel, Switzerland, 1992
Philip W. Shaul, M.D., University of Cincinnati, 1981
Philip J. Thomas, Ph.D., University of North Dakota, 1988
Roger H. Unger, M.D., Columbia University, 1947
Steven Vernino, M.D., Ph.D., Baylor College of Medicine, 1994
Helen L. Yin, Ph.D., Harvard University, 1976

Associate Professors

Benjamin Chen, Ph.D., Ohio State University, 1996
Guosheng Liang, Ph.D., Ohio State University, 1997
Pradeep Mammen, M.D., University of Wisconsin, Madison, 1995
Chieko Mineo, Ph.D., University of Tokyo, 1992
Nancy Monson, Ph.D., University of Wisconsin, Madison, 1996
Juan M. Pascual, M.D., Universidad de Granada, Spain, 1990; Ph.D., Baylor College of Medicine, 1995
Beverly A. Rothermel, Ph.D., Yale University, 1991
Benjamin Tu, Ph.D., University of California, San Francisco, 2003
Yihong Wan, Ph.D., University of Colorado Health Sciences Center, 2001
Guanghua Xiao, Ph.D., University of Minnesota, 2006
Shin Yamazaki, Ph.D., Tamagawa University, Tokyo, 1992
Jin Ye, Ph.D., UT Southwestern Medical Center, 2000
Chengcheng “Alec” Zhang, Ph.D., University of Illinois at Urbana-Champaign, 1999

Assistant Professors

Laurent Gautron, Ph.D., University of Bordeaux-France, 2003
Rana K. Gupta, Ph.D., University of Pennsylvania, 2006
William Holland, Ph.D., University of Utah, 2007
Ming-Chang Hu, M.D., Ph.D., Nanjing University, 1982, University of Paris, 1999
James Kim, M.D., Ph.D., University of Rochester, 1999
Chen Liu, Ph.D., Case Western Reserve University, 2010
Ram Mani, Ph.D., Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, 2007
Nikhil Munshi, Ph.D., M.D., Columbia University, 2001, 2003
Douglas Strand, Ph.D., Baylor College of Medicine, 2007
Zhao Wang, Ph.D., Albert Einstein College of Medicine, 2008
Kevin Williams, Ph.D., Tulane University, 2006
Qun Zang, Ph.D., City University of New York, 1996

Associate Members

These faculty members do not accept graduate students. They participate in teaching, co-mentoring, exam and Dissertation Committees, and all other Program responsibilities.

Shin Yamazaki, Ph.D., Tamagawa University, Tokyo, 1992

Xiaowei Zhan, Ph.D., University of Michigan, 2014

Description of the Discipline

The Integrative Molecular and Biological Sciences Graduate Program promotes cross-disciplinary research involving faculty in basic science and clinical Departments with the goal of training a student for a career as an independent investigator in biological and biomedical sciences. Students' research focuses on the molecular and cellular basis of integrated biological systems, including cells, tissues and whole animals, under physiological and pathological conditions in world-class laboratories. Major areas of investigation include molecular mechanisms of diseases, metabolism and metabolic diseases, gene expression and regulation, regulation of cardiovascular, renal, liver functions, stem cell biology, cancer, cell cycle and growth control, mechanisms of behavior, carbohydrate and lipid metabolism, cell signaling, neuronal functions and neurological diseases, structural and computational biology, and immunology.

Objectives

The Integrative Molecular and Biological Sciences Graduate Program offers doctoral training in a multidisciplinary, integrative discipline that seeks to understand the molecular basis of biological and physiological processes and thereby discover insights into disease mechanisms and potential therapeutic approaches through molecular medicine. Students in this Program have the opportunity to master scientific principles through classroom, seminar, and discussion experiences and have the opportunity to perform original and innovative research in diverse research areas. The goal of this Program is to prepare students for biomedical and biological research in academia, industry, or government. The dissertation project can combine studies on cells, tissues, systems, whole animals, and computation with aspects of cell or molecular biology.

Special Requirements for Admission

Students wishing to join the Integrative Molecular and Biological Sciences Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. Usually, students seek enrollment in the Program toward the end of the first year of study following completion of the set of research rotations and selection of a mentor.

Curriculum

All students in the Molecular and Biological Sciences Graduate Program must have satisfactorily completed the first-year core curriculum and two laboratory rotations. In the second year, students complete at least nine credit hours of advanced course work. The advanced course work must include the program-required courses. Additional courses may be selected from those listed in other Division of Basic Science Graduate Programs.

Students are strongly encouraged to develop – in collaboration with the graduate student advisor and appropriate faculty – special topic courses dealing with the physiological

systems related to future dissertation research. These tutorial-type courses may cover fundamental knowledge as well as methodological approaches and recent primary literature. Students will participate in a seminar-Journal Club each term.

At the end of the second year, students take a qualifying examination, which consists of an oral defense of an original, written proposal.

Admission to candidacy for the Ph.D. requires satisfactory performance in the core and advanced courses and on the qualifying exam.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/integrative-biology/course-descriptions.html

MOLECULAR BIOPHYSICS

Chair, Graduate Program

Luke Rice, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Joseph P. Albanesi, Ph.D., Duke University, 1980
Paul Blount, Ph.D., Washington University School of Medicine, St. Louis, 1990
Yuh Min Chook, Ph.D., Harvard University, 1994
David R. Corey, Ph.D., University of California, Berkeley, 1990
Elizabeth J. Goldsmith, Ph.D., University of California, Los Angeles, 1972
Nick V. Grishin, Ph.D., UT Southwestern Medical Center, 1998
Youxing Jiang, Ph.D., Yale University, 1997
Ege T. Kavalali, Ph.D., Rutgers University, 1995
Craig R. Malloy, M.D., University of California, San Francisco, 1977
Zbyszek Otwinowski, Ph.D., University of Chicago, 1989
Margaret A. Phillips, Ph.D., University of California, San Francisco, 1988
José Rizo-Rey, Ph.D., University of Barcelona, Spain, 1988
Michael Rosen, Ph.D., Harvard University, 1993
Elliott M. Ross, Ph.D., Cornell University, 1975
Sandra Schmid, Ph.D., Stanford University, 1985
Philip J. Thomas, Ph.D., University of South Dakota, 1988

Hongtao Yu, Ph.D., Harvard University, 1995

Associate Professors

Daniela Nicastro, Ph.D., Ludwig-Maximilians-Universitat, Munich, 2000
Xuelian Luo, Ph.D., Tufts University, 1997
Luke Rice, Ph.D., Yale University, 2000
Daniel Rosenbaum, Ph.D., Harvard University, 2005
Guanghua Xiao, Ph.D., University of Minnesota, 2006
Yang Xie, Ph.D., University of Minnesota, 2006
Hong Zhang, Ph.D., University of Illinois at Urbana-Champaign, 1994
Xuewu Zhang, Ph.D., Albert Einstein College of Medicine, 2003

Assistant Professors

Xiaochen Bai, M.D., Tsinghua University, 2016
Zhe Chen, Ph.D., UT Southwestern Medical Center, 2002
Jan Erzberger, Ph.D., University of California, Berkeley, 2005
Kendra Frederick, Ph.D., University of Pennsylvania, 2006
William Mike Henne, Ph.D., University of Cambridge, 2009
Ryan Hibbs, Ph.D., University of California, San Diego, 2006
Khuloud Jaqaman, Ph.D., Indiana University, 2003
Lukasz Joachimiak, Ph.D., University of Washington, 2007
Milo Lin, Ph.D., California Institute of Technology, 2012
Xin Liu, Ph.D., University of Pennsylvania, 2007
Yunsun Nam, Ph.D., Harvard University, 2006
Arun Radhakrishnan, Ph.D., Stanford University, 2002
Michael Reese, Ph.D., University of California, San Francisco, 2006
Kimberly Reynolds, Ph.D., University of California, Berkeley, 2006
William Russ, Ph.D., Yale University, 1998
Erdal Toprak, Ph.D., University of Illinois, 2007

Objectives

The Molecular Biophysics Graduate Program offers a vibrant environment for students interested in studying biology from a quantitative, physical perspective. The Program is highly interdisciplinary, comprising more than 30 faculty members with diverse backgrounds and interests, ranging from mathematics and theoretical physics to neurobiology and genetics. Using a wide range of biophysical techniques, including X-ray crystallography, NMR spectroscopy, electron microscopy, light spectroscopy/microscopy, and computational modeling among others, these laboratories investigate in atomic detail how proteins and other macromolecules function individually or as part of complex biological systems. Neurotransmitter release, cytoskeletal dynamics, cellular signaling, nuclear transport, ion channels, transporters, photosensors, T-cell receptors, and G-proteins are among the many areas of interest.

A highly interactive atmosphere – catalyzed by Journal Clubs, an annual retreat, and the celebrated Molecular Biophysics Discussion Group seminar series – offers all members of the Program the opportunity to learn from each other and to gain expertise in many varied subjects, well beyond their own areas of research. Ultimately, the mission of the Program is to provide students with conceptual tools and research experiences that will prepare them to apply the principles and techniques of the physical sciences to biomedical problems.

Special Requirements for Admission

In general, conditions for admission to the Program are good academic standing within the Division of Basic Science of the Graduate School and an interest in pursuing a research and training program in molecular biophysics. Students with strong backgrounds in the physical sciences and mathematics will be well prepared to join the Program, but such backgrounds are not required.

Students ordinarily apply for formal admission to the Program in the middle or the end of the fall semester, but are encouraged to participate in the Program informally at any time after admission into the Division of Basic Science. It is not necessary that a student within the Program choose a dissertation research mentor who is a member of the faculty of the Program, provided the student has sound reasons for this choice.

Curriculum

Biophysics is a field defined by its application of physical principles and techniques to investigation of key biological problems. Optimal training for a career in molecular biophysics includes exposure to the theoretical basis for physical properties and interactions of biological molecules, the technical approaches that are available to investigate biological systems, and the results of studies in which biophysics has contributed to an understanding of the biological characteristics of system behavior. The Molecular Biophysics Graduate Program includes course work in each of these three areas.

Core Curriculum

The first-year Core Curriculum, required of all students in the Division of Basic Science, offers training in the broad issues faced by contemporary biological science. This course provides four hours of course credit toward the minimum of 30 hours required for the first year. Students are also required to take two courses on Professionalism, Responsible Conduct of Research, and Ethics (2 credit hours).

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/molecular-biophysics/course-descriptions.html

Molecular Biophysics Journal Club and Discussion Group

The Molecular Biophysics Journal Club offers students an opportunity to keep abreast of recent research results in the literature, to sharpen critical acumen, and to develop public-speaking skills. Every student in the Graduate Program is expected to attend the Journal Club and to participate actively. In addition, each student is required to present one journal article or work-in-progress per year.

Students also are strongly encouraged to attend meetings of the Molecular Biophysics Discussion Group and presentations of interest to biophysicists occurring in the numerous seminar series offered by UT Southwestern and its various basic science departments. The Molecular Biophysics Discussion Group and the annual Molecular Biophysics Research Symposium provide forums for presentation of the students' own research, as well as acquainting them with recent research results from other laboratories on campus and from invited speakers.

Qualifying Examination

Admission to candidacy for the Ph.D. requires that students prepare and defend a written research proposal, modeled on an NIH-R01 grant proposal. A student may choose a topic that is related to his or her own prospective dissertation research or may select an unrelated biophysical topic. The student is expected to write a hypothesis- or question-driven proposal. Students who choose to defend an invention or new method must devise suitable controls to demonstrate feasibility. Proposals based on anticipated dissertation research are expected to address fundamental issues; these may, in some cases, extend beyond those encompassed by the dissertation itself. Both the written proposal and the oral defense will be judged for clarity and originality of thought and for the degree of mastery of experimental design and analysis of data expected for a student at the end of the second year of Graduate School. During the oral examination, the student also is expected to respond to questions of general knowledge in molecular biophysics.

The ad hoc Examination Committee is composed of three faculty members, at least two of whom belong to the Molecular Biophysics Graduate Program. The student's mentor is not eligible to serve on the Committee. Members of the Committee and the Committee Chair will be chosen by the Chair of the Molecular Biophysics Student Evaluation Committee in consultation with the student's mentor. These choices are based primarily upon expertise in the field of study to be examined.

Dissertation Committee

Following successful completion of the qualifying examination, the student proposes a Dissertation Committee comprising at least four members of the faculty, at least two of them members of the Molecular Biophysics Graduate Program. The constitution of the dissertation Committee must be approved by the Program Chair.

Within 30 days after forming the Dissertation Committee, the student presents to the Committee a written summary of his or her proposed topic and preliminary research progress toward the project's goals. This initial meeting generally involves a 30-minute oral presentation by the student, followed by discussion and suggestions from the members of the Committee.

Every student must hold at least one meeting of his or her Dissertation Committee each year. After the third year, meetings are held every six months. Additional meetings may be called at any time by the student or by the Committee. The Dissertation Committee monitors the student's progress based on research accomplished, course grades, and Journal Club and other presentations.

Dissertation Defense

A complete copy of the dissertation must be approved by the Dissertation Committee before a public dissertation defense can be scheduled. The defense is composed of a public lecture describing the main observations of the research, followed by an oral examination by the Dissertation Committee. Attendance during the oral examination is restricted to faculty of the Graduate School, and participation is restricted to the Examination Committee.

MOLECULAR MICROBIOLOGY

Chair, Graduate Program

David R. Hendrixson, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Paul Blount, Ph.D., Washington University School of Medicine, St. Louis, 1990
Beatriz M.A. Fontura, Ph.D., New York University School of Medicine, 1996
Eric J. Hansen, Ph.D., University of Michigan, 1977
Lora Hooper, Ph.D., Washington University School of Medicine, St. Louis, 1997
Jeffrey S. Kahn, M.D., Ph.D., State University of New York Health Science Center at Brooklyn, 1991
Beth Levine, M.D., Cornell University Medical College, 1986
Michael V. Norgard, Ph.D., New Jersey Medical School, 1977
Kim Orth, Ph.D., UT Southwestern Medical Center, 1993
Julie K. Pfeiffer, Ph.D., University of Michigan, 2001
Vanessa Sperandio, Ph.D., State University of Campinas, Brazil, 1995
Iwona Stroynowski, Ph.D., Stanford University, 1979

Associate Professors

Neal M. Alto, Ph.D., Oregon Health & Science University, 2003
Nicholas K. Conrad, Ph.D., Johns Hopkins University, 2001
Ivan D'Orso, Ph.D., National University of San Martin, Argentina, 2003
David E. Greenberg, M.D., Baylor College of Medicine, 1999
David R. Hendrixson, Ph.D., Washington University, St. Louis, 1999
Raksha Jain, M.D., UT Houston Health Science Center, 2001
Andrew Y. Koh, M.D., Harvard Medical School, 1996
Tony Michael, Ph.D., University of East Anglia, 1998
Nicolai S.C. van Oers, Ph.D., McGill University, Canada, 1990
Nan Yan, Ph.D., UT Austin, 2006

Assistant Professors

Don Gammon, Ph.D., University of Alberta, 2010
Tiffany Reese, Ph.D., University of California, San Francisco, 2007
Kim Reynolds, Ph.D., University of California, Berkley, 2006
John Schoggins, Ph.D., Cornell University Medical College, 2007
Michael U. Shiloh, M.D., Cornell University Medical College, 2001
Nancy E. Street, Ph.D., UT Southwestern Medical Center, 1987
Erdal Toprak, Ph.D., University of Illinois at Urbana-Champaign, 2007
Dawn Wetzel, M.D., Ph.D., Washington University School of Medicine, 2005
Sebastian Winter, Ph.D., University of Munich, 2010

Objectives

The Molecular Microbiology Graduate Program emphasizes an integrated approach to the study of prokaryotic and eukaryotic organisms. A universal major focus of the research of many faculty members of the Molecular Microbiology Graduate Program is the study of medically relevant bacteria and viruses and the ways these pathogens interact with respective hosts to cause disease. For many research programs, interdisciplinary approaches are employed to analyze various interesting aspects of the biology of these important pathogens. Overall, this Program is dedicated to providing a superior level of training in biomedical research strategies and technologies related to the major principles of molecular microbiology.

The major emphases of studies in the Molecular Microbiology Graduate Program include:

- ***Bacterial Pathogenesis:*** analysis of virulence and colonization factors, bacterial toxins, interactions of pathogens and their products with eukaryotic host cells, contemporary vaccine strategies, bacterial gene regulation, bacterial export and secretion, and genetic regulation of virulence gene expression

- ***Virology:*** viral replication and persistence, viral pathogenesis, neurovirology, host resistance to viral infection, viral vaccines, eukaryotic gene regulation, signal transduction pathways, and cellular and molecular mechanisms of human oncogenesis
- ***Cellular and Molecular Immunology:*** mechanisms of immune cell activation by microbes and their products, host responses to pathogen infection, role of commensal bacteria in modulation of immune responses and infection, mechanisms of inflammation, tumor immunology, mechanisms of innate immune responses, and functions of T-cell subsets.

Special Requirements for Admission

Students wishing to join the Molecular Microbiology Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. Students enter the Program after successfully completing the first-year Core Curriculum and selecting a mentor. Initiation of the student's dissertation research then commences. The faculty offers advanced courses in the areas of medical microbiology and infectious diseases (including immunology), molecular basis of microbial pathogenesis, microbial genetics, virology, viruses in human cancer, cell and molecular immunology, and genetic manipulation of the immune system. Participation in selected Journal Clubs and seminars offered within the Molecular Microbiology Graduate Program provide exposure to additional educational opportunities. The Program is supported in part by an NIH training grant and the S. Edward Sulkin endowment, which awards up to $1,000 annually to a highly deserving graduate student in the Program.

Curriculum

All Division of Basic Science students take the Core Curriculum beginning in the fall of the first year of graduate study. Upon officially joining the Molecular Microbiology Graduate Program, students take the required courses and attend the Microbiology Seminar course (which includes the student Works-In-Progress series and the Department of Microbiology Seminar Series) and the Journal Club (Contemporary Topics in Microbiology). Preparation for and completion of the qualifying examination should be done during the spring semester of the second year.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/molecular-microbiology/course-descriptions.html

During the spring of the second year, students are required to pass a two-phase qualifying examination for admission to candidacy for the Ph.D. Phase I of the qualifying exam will consist of a written review of the relevant literature and description of the proposed thesis topic. Phase II consists of a written research proposal and its oral defense. Successful completion of the qualifying examination is required to advance to candidacy for the Ph.D. The goal of the examination is to assess the student's knowledge of fundamental facts in advanced

molecular microbiology and his or her ability to synthesize these facts and apply them to scientific research. It is designed to foster the development of useful skills such as original thinking, critical reading of the literature, logical design of experiments, and focused interpretation of data.

After the student is admitted to candidacy, a Supervisory Committee is appointed with the supervising Professor as Chair. This Committee reviews and evaluates the student's progress according to the Graduate School guidelines and, upon completion of the written dissertation-based original research and the student's public presentation of the work, participates in the final oral examination of the student.

NEUROSCIENCE

Chair, Graduate Program

Kimberly M. Huber, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Ilya B. Bezprozvanny, Ph.D., Institute of Cytology, Russian Academy of Sciences, 1992
Marc Diamond, M.D., University of California, San Francisco, 1993
Jeffrey Elliott, M.D., Washington University, St. Louis, 1988
Joel Elmquist, D.V.M., Ph.D., Iowa State University, 1992, 1993
Mark Goldberg, M.D, Columbia University College of Physicians and Surgeons, 1984
Carla Green, Ph.D., University of Kansas Medical Center, 1991
Robert Greene, Ph.D., George Washington University, 1982; M.D., University of Maryland, 1983
Mark J. Henkemeyer, Ph.D., University of Wisconsin, Madison, 1990
Donald W. Hilgemann, Ph.D., University of Tübingen, Germany, 1980
Kimberly M. Huber, Ph.D., UT Graduate School of Biomedical Sciences at Houston, 1995
Jane E. Johnson, Ph.D., University of Washington, 1988
Helmut J. Krämer, Ph.D., University of Cologne, Germany, 1989
Berge Minassian, M.D., McGill University, 1992
Craig Powell, M.D., Ph.D., Baylor College of Medicine, 1994
José Rizo-Rey, Ph.D., University of Barcelona, Spain, 1988
Roger Rosenberg, M.D., Northwestern University Medical School, 1964
David W. Self, Ph.D., University of California, Irvine, 1992
Dean P. Smith, M.D., University of Utah, 1986; Ph.D., University of California, San Diego, 1992
Joseph Takahashi, Ph.D., University of Oregon, 1981
Carol A. Tamminga, M.D., Vanderbilt University Medical School, 1971
Jeffrey Zigman, M.D., Ph.D., University of Chicago, 1994

Associate Professors

Taekyung Kim, Ph.D., University of Medicine and Dentistry of New Jersey, 2000
Genevieve Konopka, Ph.D., Harvard University, 2004
Weichun Lin, Ph.D., State University of New York, 1996
Chen Liu, Ph.D., Case Western Reserve University, 2010
Ram Madabhushi, Ph.D., Cornell University 2010
Juan M. Pascual, M.D., Universidad de Granada, Spain, 1990; Ph.D., Baylor College of Medicine, 1995
Jonathan Terman, Ph.D., Ohio State University, 1997
Jiang Wu, Ph.D., UT Austin, 2001
Gang Yu, Ph.D., University of Calgary, Canada, 1996
Chun-Li Zhang, Ph.D., UT Southwestern Medical Center, 2002

Assistant Professors

Maria Chahrour, Ph.D., Baylor College of Medicine, 2009
Peter Douglas, Ph.D., University of North Carolina, 2009
Woo-Ping Ge, Ph.D., Chinese Academy of Sciences, 2005
Ryan Hibbs, Ph.D., University of California, San Diego, 2006
Takashi Kitamura, Ph.D., Kyushu University, 2007
Said Kourrich, Ph.D., University of Provence, France, 2001
Helen Lai, Ph.D., University of California, San Francisco, 2005
Bradley Lega, M.D., Baylor College of Medicine, 2006
Julian Meeks, Ph.D., Washington University, 2006
Brad Pfeiffer, Ph.D., UT Southwestern Medical Center, 2008
Todd Roberts, Ph.D., University of Maryland, 2003
Steven Shabel, Ph.D., University of California San Francisco, 2008
Ann Stowe, Ph.D., University of Kansas Medical Center, 2006
Peter Tsai, M.D., Ph.D., University of California, Los Angeles, 2005
Lenora Volk, Ph.D., UT Southwestern Medical Center, 2007
Yingfei Wang, Ph.D., University of Magdeburg, Germany, 2007
Kevin Williams, Ph.D., Tulane University, 2006
Wei Xu, Ph.D., University of Southern California, 2008

Objectives

The Neuroscience Graduate Program focuses on cellular and molecular as well as systems neurobiology. Topics of particular interest include synaptic physiology and synaptic plasticity; membrane biophysics, especially receptors and ion channels; neuronal organelle traffic, particularly the biogenesis and exo- and endocytosis of synaptic vesicles; neurogenetics of invertebrates and vertebrates; development of neural systems; and molecular and cellular basis of complex behavior.

Special Requirements for Admission

Students wishing to join the Neuroscience Graduate Program must be enrolled in the Division of Basic Science and be in good standing academically. Usually, students seek enrollment in the Program toward the end of their first year of study following completion of the set of research rotations and selection of a mentor. Prospective students should note that the diverse research topics in the field make neurobiology an appropriate doctoral subject for those with undergraduate degrees in physics, chemistry, engineering, mathematics, and psychology, as well as in biological disciplines.

Curriculum

Neurobiology is a field defined not by a specific intellectual approach or experimental technique, but by its subject matter: the cells of the nervous, sensory, and muscular systems. Because of the variety of methods that must be brought to bear in studies of these systems, the optimal training for a career in neurobiological research includes an in-depth exposure to the principles of biochemistry, biophysics, cell and molecular biology, developmental biology, genetics, immunology, pharmacology, and physiology, as well as behavioral neuroscience.

Core Curriculum

By providing a solid background in the above areas, the first-year Core Curriculum offers appropriate training for first-year students who elect to join the Neuroscience Graduate Program. The first-year course also provides 15 hours of course credit toward the minimum 24 hours required for graduation.

Laboratory Rotations

First-year students participate in a minimum of two laboratory rotations. Insofar as possible, students with an interest in neurobiology should seek rotations that expose them to a wide variety of technical approaches, including anatomy, behavior, biochemistry, biophysics, cell biology, genetics, molecular biology, and physiology. At the end of the first year of study, students choose a mentor for dissertation research.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/neuroscience/course-descriptions.html

Neuroscience Journal Club

The Neuroscience Journal Club offers students an opportunity to keep abreast of recent research results, to sharpen critical acumen and to develop speaking skills. Every student in the Graduate Program is expected to attend a Journal Club and to participate actively. In addition, each student is required to make at least one Journal Club presentation per year.

Neuroscience Seminar

Weekly neuroscience seminars hosted by the departments of Psychiatry, Neurology, and Neuroscience are held to present current advances in all areas of modern neurobiology. One or two seminars are organized by the students of the Neuroscience Graduate Program. Furthermore, numerous scientific presentations of interest to neurobiologists occur each year in seminar series offered by the Departments of Cell Biology, Molecular Biology, Pharmacology, and Physiology, among others. The University Lecture Series often deals with the nervous system and related topics.

Work in Progress

Students, postdoctoral fellows, faculty, and other interested individuals meet on a biweekly basis to discuss current research carried out by students of the Neuroscience Graduate Program. The student presentations are made in a setting that fosters spontaneity and exchange of ideas.

Annual Neuroscience Retreat

Once a year, students, postdoctoral fellows, and faculty members gather for an all-day meeting to present current work and exchange research ideas. This meeting is held off campus in a setting where participants have the opportunity to present their research in a manner similar to the annual meeting of the Society for Neuroscience. All students in the Neuroscience Graduate Program are expected to attend, and advanced students are required to present their research in a formal setting.

Qualifying Examination

The qualifying examination comprises a written and an oral component, each of which must be passed as part of the qualifications for admission to Ph.D. candidacy. Unless a prior extension is granted by the Steering Committee, each student must complete the qualifying examination by the end of September of his or her second year of graduate enrollment. Those students in the Medical Scientist Training Program who initially take two years of medical training may defer the qualifying examination per approval of the Program Chair.

The written component is a research proposal dealing with a group of related scientific problems in an area of study different from that in which the student expects to conduct his or her dissertation. The oral examination ordinarily is given in a single closed session lasting from one to two hours. The student is expected to answer questions relating to material in courses that he or she has taken, to the subject matter in the written proposal and to general information in the field of neurobiology.

Dissertation Defense

A complete copy of the dissertation must be approved by the Dissertation Committee before a public dissertation defense can be scheduled. The defense is composed of a public lecture describing the main observations of the research, followed by an oral examination by the Dissertation Committee. Attendance during the oral examination is restricted to faculty members of the Graduate School, and participation is restricted to the Examination Committee.

ORGANIC CHEMISTRY

Chair, Graduate Program

Uttam Tambar, Ph.D.

Degree Offered

Doctor of Philosophy

FACULTY

Professors

Chuo Chen, Ph.D., Harvard University, 2001
Jef DeBrabander, Ph.D., University Gent, 1993
Joseph Ready, Ph.D., Harvard University, 2001

Associate Professors

Jeffrey McDonald, Ph.D., Indiana University at Bloomington, 2002
Uttam Tambar, Ph.D., California Institute of Technology, 2006

Assistant Professors

Jacques Lux, Ph.D., University of Strasbourg, France, 2009
Daniel Siegwart, Ph.D., Carnegie Mellon University, 2008

Objectives

The Organic Chemistry Graduate Program is designed to prepare students to address emerging research opportunities at the crossroads of modern chemistry, biological chemistry and materials science as it relates to problems of biomedical importance. Students participate in dynamic research led by faculty that are world leaders in the field of chemistry and experience the satisfaction of making original contributions to the advancement of chemistry and related disciplines. Students in the program benefit from working collaboratively across disciplines to solve complex health challenges, a hallmark of an education at UT Southwestern Medical Center.

UT Southwestern has world-class facilities for modern chemistry, including four high-field NMR systems devoted to small molecules.

Special Requirements for Admission

Students within the Program must choose a mentor who is a faculty member of the Program. Students will apply for formal admission to the Organic Chemistry Program at the time of applying to the Division of Basic Science.

Organic Chemistry is designed to prepare students for emerging research opportunities at the crossroads of modern chemistry and discovery biology. Research projects focus on topics at the forefront of synthetic and mechanistic chemistry, chemical biology, and biochemistry. The Program is committed to providing an educational experience that is challenging, broad-based, and rigorous.

ADVANCED COURSES

Course requirements and descriptions are listed here:

http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/organic-chemistry/courses.html

Student Seminars

A weekly seminar provides a format in which students are encouraged to think critically about their research and how it relates to topics in chemistry. Each student presents one Works-In-Progress talk and one Journal Club annually.

WIPs are designed to generate feedback and suggestions for students regarding their research from a diverse audience and to provide experience with formal presentations, a critical skill for successful scientists. Faculty mentors attend regularly and facilitate discussion of the research presented.

Journal Club presentations provide a forum for students to learn and describe an area of chemistry not directly related to their thesis topics. This forum aims to broaden students' knowledge and sophistication regarding important areas in synthetic chemistry. Topics are chosen by students in consultation with thesis advisors. Postdoctoral fellows also have an opportunity to present Journal Clubs.

Dissertation Committee

This Committee oversees the scientific progress of the student toward completion of a degree. Faculty members on the Committee are selected for expertise in the thesis area so they can contribute substantial intellectual insight in direction of the project. The Committee must have at least four members, including the thesis advisor and at least two Program faculty members. The Committee meets at least once a year to provide guidance and advice and to ensure the student's satisfactory progress toward a degree.

Qualifying Examination

The qualifying examination evaluates the student's ability to develop a hypothesis-based research proposal that addresses a specific question in modern chemistry. The proposal must be presented in written and oral forms. To distinguish the student's abilities from those of the dissertation advisor, the student may not prepare a proposal related to dissertation research or to research being carried out by other members of the student's laboratory. The examination tests the student's ability to defend work described in the proposal and to

demonstrate an understanding of the underlying concepts, experimental approaches and designs, and their limitations. Advancement to Ph.D. candidacy depends on successful completion of the oral examination. The qualifying examination process takes place during the spring of the second year after course work is completed.

DIVISION OF CLINICAL SCIENCE

The Division of Clinical Science comprises two graduate programs in the areas of Clinical Psychology and Clinical Sciences.

The Clinical Psychology Graduate Program combines training in current methods of counseling and psychological therapy with in-depth exposure to research methods and design to answer important psychological questions. Students undertake didactic course work in addition to internships, clinical practica, and research practica prior to completion of the program. The program leads to the Ph.D. degree.

The Clinical Sciences Graduate Program provides an opportunity for medical fellows, postdoctoral researchers, and junior faculty to receive training in patient-oriented research. Trainees gain an in-depth understanding of the role that rigorous, science-driven research plays in achieving clinical goals. Trainees design and write case reports, case series, cross-sectional studies, case control studies, cohort analytic studies, pathophysiology and human genetic analyses, and clinical trials. The Clinical Sciences Graduate Program leads to the M.S.C.S. degree.

CLINICAL PSYCHOLOGY

Chair, Graduate Program
Betsy D. Kennard, Psy.D, ABPP

Degree Offered
Doctor of Philosophy

FACULTY

Professors

C. Munro Cullum, Ph.D., ABPP, UT Austin, 1986
Graham Emslie, M.D., University of Aberdeen, Scotland, 1974
Carroll W. Hughes, Ph.D., University of Missouri, 1973
Mustafa Husain, M.D., Dow Medical College, Pakistan, 1981
Robin Jarrett, Ph.D., University of North Carolina at Greensboro, 1983
Betsy D. Kennard, Psy.D, ABPP, Baylor University, 1984
Laura Lacritz, Ph.D., ABPP, UT Southwestern Medical Center, 1994
Joan Reisch, Ph.D., Southern Methodist University, 1974
Celette Skinner, Ph.D., University of North Carolina at Chapel Hill, 1991
Sunita Stewart, Ph.D., University of Massachusetts, Amherst, 1981
Alina Suris, Ph.D., ABPP, University of Houston, 1991
Carol Tamminga, M.D., Vanderbilt University Medical School, 1971

Madhukar Trivedi, M.D., Baroda Medical College, 1980
Myron Weiner, M.D., Tulane University School of Medicine, 1957

Associate Professors

Julie Germann, Ph.D., University of Toledo, 2000
Daniel Krawczyk, Ph.D., University of California, Los Angeles, 2003
Ramona Rhodes, M.D., University of Arkansas College of Medicine, 2000

Assistant Professors

Nyaz Didehbani, Ph.D., University of North Texas, 2009
Kan Ding, M.D., Peking Union Medical College, 1997
Aleksandra Foxwell, Ph.D., UT Southwestern Medical Center, 2011
Dailyn Martinez, Ph.D., UT Southwestern Medical Center, 2014
Wendy Ringe, Ph.D., UT Southwestern Medical Center, 2000
Mona Robbins, Ph.D., University of Illinois at Urbana-Champaign, 2013
Rebekah Travis, Psy. D., Florida Institute of Technology, 2013
Robrina Walker, Ph.D., Virginia Polytechnic Institute, 2007

Goals and Objectives

The Clinical Psychology Graduate Program is accredited by the American Psychological Association (APA). It offers students the opportunity to work with faculty drawn from many components of UT Southwestern Medical Center; thus, it is an interdepartmental group as well as an interdisciplinary one. Core psychology faculty members are typically members of the Division of Psychology in the Department of Psychiatry. The Program includes an affiliated, separately APA-accredited doctoral internship program.

This Program offers the student an educational sequence that emphasizes extensive professional preparation and incorporates communitywide clinical and consulting experiences while maintaining those scientific underpinnings that make the psychologist's approach distinctive – an interest in the spirit and techniques of inquiry and responsiveness to behavioral data informed by critically evaluated theory. In keeping with psychology's scientific foundation, students have the opportunity for exposure to a range of clinical research activities, especially during the last two years when they apprentice with a faculty researcher and embark upon formal dissertation research.

We believe that an appreciation of the reciprocal influence of practice and research will help in a student's professional preparation and stand him or her in good stead in the public or private practice of clinical psychology.

The Program requires four semesters of practicum clinical experience (20 hours a week), and a two-year, half-time doctoral internship experience over a four-year period in an academic medical center. Emphasis is placed on assessment, intervention, and consultative experiences in a variety of medical, psychiatric, and community settings. Examples of these settings

include Parkland Hospital, Children's Health/Children's Medical Center Dallas, UT Southwestern Neuropsychology Center, Dallas County Juvenile Department, local University mental health centers, and community-based mental health services.

Notable examples of comprehensive clinical research programs at UT Southwestern in which psychology graduate students have participated include an affective disorders research program with projects such as comparisons of medication and cognitive therapy in the management of depressed patients and response to treatment in children and adolescents with affective illness; a health psychology research program investigating psychological factors in individuals with chronic pain and survivors of cancer; and the Alzheimer's Disease Center, which is involved in clinical research projects such as differential diagnosis of Alzheimer's disease, early detection of dementia, and neuroanatomical and biochemical correlates of Alzheimer's.

In addition, the UT Southwestern Neuropsychology Laboratory has a research component with multiple ongoing projects, including the differentiation of normal and abnormal aging; cognitive and memory function in neuropsychiatric disorders; neuroimaging correlates of neuropsychological function (including fMRI); and cognitive profiles in epilepsy, multiple sclerosis, cortical and subcortical dementias, and recovery from neurosurgery. Children's Health Pediatric Neuropsychology Service also has numerous research projects focused on cognitive and psychosocial outcomes of complex medical conditions, impact of medical and therapeutic interventions, and tele-neuropsychology.

Requirements for Admission

Potential applicants should communicate directly with the Office of Enrollment Services at UT Southwestern Medical Center. Applicants must apply online at our web address, http://www.utsouthwestern.edu/education/graduate-school/programs/phd-degrees/clinical-psychology/index.html. Applicants must submit one original copy of each transcript of record issued by every college or university attended, and provide three letters of recommendation (submitted electronically), as well as Graduate Record Examination scores.

A bachelor's degree or its equivalent from an accredited institution of higher learning in the United States, or proof of equivalent training at a foreign university, is required. Students who have completed or are in the process of completing a bachelor's degree are eligible to apply. Substantial coursework or a major in psychology is encouraged.

The Admissions Committee uses the following criteria in evaluating each application (not in any particular order of priority):

1) Scores on the GRE-General test taken within the past five years;

2) Academic performance in undergraduate school as reflected in the grade-point average;

3) Experiences in clinical and/or scientific research activities that would contribute to successful completion of a doctoral program;

4) The applicant's statement of background training experiences and personal motivation for a career in clinical psychology;

5) Recommendations from appropriate professors and/or mentors;

6) Personal suitability for a career in clinical psychology, as evidenced by ability to relate to others, warmth, empathy, and a deep interest in psychological processes;

7) Factors that contribute to individual diversity; and

8) Interview.

The Admissions Committee conducts all-day group interviews for the top 35 to 40 applicants who have been screened from the total pool of applicants and deemed to be the best match for the Program. The interview is an interactive process that involves students and faculty and includes Program overview, individual interviews, and group activities. The interview typically is scheduled for the last Saturday in February.

Students are admitted only in the fall term. The submission deadline for completed applications is Dec. 1.

Curriculum

The curriculum is designed as a full-time, four-year program and includes four summers of full-time work. During the academic year, students are involved in classes, seminars, research apprenticeships, and clinical work simultaneously. Clinical assignments begin during the first summer and continue throughout the remaining three years. Research apprenticeships are scheduled for the third and fourth years, two days per week. In the third and fourth year of the Program, the students are concurrently enrolled in an affiliated half-time APA-accredited predoctoral internship program. Clinical experiences are obtained in a wide variety of settings, both on and off campus.

Even though the curriculum is largely set, opportunities for elective courses exist at UT Southwestern in addition to the rich variety of educational offerings in the program's didactic series and also throughout the Medical Center (e.g., Grand Rounds in Psychiatry, Neurology, Neurological Surgery, etc.). The broad-based Program is designed to train well-balanced clinical psychologists. Medical/health psychology, neuropsychology, pediatric psychology, along with adult psychology are the major areas of clinical and research interest in which students can gain expertise.

This program and the affiliated internship are accredited by the American Psychological Association. The APA Office of Program Consultation and Accreditation can be contacted at www.apa.org/ed/accreditation/index.aspx or the Office of Program Consultation and Accreditation, 750 First Street NE, Washington, DC 20002-4242, phone 202-336-5979, TDD/TTY, 202-336-6123, fax 202-336-5978.

First Year

Fall term

Hours

Applied Cognitive
Neuroscience
3

Advanced
Statistics
3

Personality Theories and Dynamics

3

Clinical Methods I and
Lab
4

Advanced Abnormal Psychology and
Lab
4

Spring term

Developmental Psychology

3

Theories and Techniques of Individual Psychotherapy

3

Clinical Methods II and
Lab
4

Research Design & Multivariate
Statistics
3
Health
Psychology
3

Summer Term

Evidenced Based Therapies

2

Basics of Neuroanatomy

1

Fundamentals of Clinical Management

1

Cultural Diversity

2

Practicum (2.5 days/week)

2

Second Year

Fall term

Hours

Clinical Neuropsychology
3

Theories and Methods of Cognitive-Behavioral Therapy
3

History and Systems of Psychology
3

Practicum (2.5 days/week)
2

Spring term

Psychopharmacology
3

Professional Ethics and
Issues
3

Elective in intervention or psychological assessment
3

Practicum (2.5 days/week)

2

Summer Term

Psychometric
Theory
3

Social Psychology

3

Practicum (2.5
days/week)
2

Third Year

Fall term

Hours

Theories and Methods of Consultation, Supervision, and Program
Development
3

Research in Psychology (2
days/week)
3

Internship in Clinical Psychology (2.5
days/week)
3

Spring term

Elective in intervention or psychological

assessment
3
Research in Psychology (2
days/week)
3

Internship in Clinical Psychology (2.5
days/week)
3

Summer Term

Life-Span Developmental Psychology 2

Research in Psychology (2
days/week)
2

Internship in Clinical Psychology (2.5
days/week)
2

Fourth Year

Fall term

Hours

Dissertation
Research
3

Internship in Clinical Psychology (2.5
days/week)
6

Spring term

Dissertation
Research
3

Internship in Clinical Psychology (2.5 days/week)
6

Summer Term

Dissertation Research
3

Internship in Clinical Psychology (2.5 days/week)
3

Course Descriptions

5353 Social Psychology

This course covers research findings and theoretical formulations in social psychology and social cognition.

Prerequisite: consent of the Graduate Studies Committee.

5364 Psychometric Theory

This course offers students an introduction to test construction. Topics include reliability theory, test validation, and item analysis.

Prerequisite: consent of the Graduate Studies Committee.

5350 Clinical Neuropsychology

This course is an introduction to neuropsychology and its clinical application. Issues of brain-behavior function are addressed along with clinical assessment of brain-related dysfunction. An introduction to neuropsychological test administration and interpretation is offered.

Prerequisite: consent of the Graduate Studies Committee.

5352 Developmental Psychology

This course includes consideration of the principles, methods, and findings in selected areas of child development, such as sensory processes, perceptual development, cognitive and social development, intelligence, and language acquisition.

Prerequisite: consent of the Graduate Studies Committee.

5354 Applied Cognitive Neuroscience

Basic concepts and research strategies in the study of the neurocognitive basis of behavior are introduced in this course.

Prerequisite: consent of the Graduate Studies Committee.

5355 Personality Theories and Dynamics

Selected personality theories in relation to research evidence and clinical case material are considered in this course.

Prerequisite: consent of the Graduate Studies Committee.

5456 Advanced Abnormal Psychology and Laboratory

This course includes intensive consideration of psychopathology, emphasizing description, etiology, prognosis, treatment modes, and clinical research findings.

Prerequisite: consent of the Graduate Studies Committee.

5357 Psychopharmacology

This course offers an introduction to psychopharmacology and discussions of the various classes of psychotropic drugs with emphasis on indications for use and behavioral aspects of drug abuse.

Prerequisite: consent of the Graduate Studies Committee.

5358 Health Psychology

This course begins with an overview of the current field. The physiological bases of behavior and health and the interactions of stress and emotions are reviewed. Specific topics are control and helplessness, behavioral factors in illness, psychophysiological disorders, medical settings and patient behavior, psychological assessments in medical settings, behavioral treatment techniques, biofeedback, and pain and pain management.

Prerequisite: consent of the Graduate Studies Committee.

5363 Professional Ethics and Issues

Current professional issues in American psychology, including training, ethics, standards, legislation, and social issues relevant to psychology, are discussed in this course.

Prerequisite: consent of the Graduate Studies Committee.

5365 History and Systems of Psychology

This course attempts to determine whether psychology is a science and, if so, what kind of science. The course includes an overview of the history and philosophy of psychology, beginning with the pre-Socratic Greeks and proceeds through to current theoretical

approaches. The philosophy of science also is explored as the underlying context for considering whether psychology is a science.

5266 Life-Span Developmental Psychology

This course covers the study of individual development spanning youth to old age. The life events and challenges unique to each developmental period are highlighted.

Prerequisite: consent of the Graduate Studies Committee.

5372 Theories and Techniques of Individual Psychotherapy

This course includes a survey of the theories, techniques, and evaluation of individual psychotherapy.

Prerequisite: consent of the Graduate Studies Committee.

5373 Theories and Methods of Cognitive-Behavioral Therapy

This course includes a review of theories and methods of cognitive-behavioral therapy and their applications to clinical problems.

Prerequisite: consent of the Graduate Studies Committee.

5381 Theories and Methods of Consultation, Supervision, and Program Development

This course is an introduction to the theories, methods, and practice of consultation, supervision, and program development as they are applied to organizational, educational, and clinical settings.

Prerequisite: consent of the Graduate Studies Committee.

5284 Cultural Diversity

This course examines the complex relationships among social, cultural, ethnic, and racial factors with regard to mental health service delivery and considers cultural backgrounds and cultural issues in the assessment and treatment of patients.

5392 Research Design and Multivariate Statistics

This course offers a solid foundation and understanding of basic statistical concepts. The student acquires experience with data analysis using applied statistics for the behavioral sciences (including nonparametric tests, correlations, t-tests, ANOVA, and linear regression). Applications of computerized database and data analysis are highlighted. Methodological and ethical issues relevant to applied clinical research problems are emphasized.

Prerequisite: consent of the Graduate Studies Committee.

5385 Advanced Statistics

The course integrates research design and computerized data analysis. The course covers experimental design and analysis of variance models, multiple linear regression, analysis of covariance, and nonlinear inference.

5461 Clinical Methods I and Laboratory

This course includes the consideration and application of diagnostic methods for the assessment of children and adolescents on the constructs of intelligence, achievement, aptitude, interest, personality, and psychological deficits.

Prerequisite: consent of the Graduate Studies Committee.

5462 Clinical Methods II and Laboratory

This course emphasizes assessment of adult populations, with an emphasis on projective techniques and clinical consultation using psychological test materials.

Prerequisites: Clinical Methods I and consent of the Graduate Studies Committee.

5090-01 Practicum in Clinical Psychology

This course includes the application of psychological principles, assessment methods, and other behavior-changing techniques and consultation approaches under supervision in a clinical setting. Practicum may be repeated for credit.

Prerequisites: consent of the Graduate Studies Committee, and full-time graduate student standing in Clinical Psychology.

5091-01 Internship in Clinical Psychology

This course includes the affiliated, APA-accredited doctoral internship, which is a two-year, half-time clinical experience where the application of psychological principles, assessment methods, and other behavior-changing techniques and consultation approaches are taught and performed under supervision by a licensed psychologist in a clinical setting. Internship may be repeated for credit.

Prerequisites: consent of the Graduate Studies Committee, satisfactory completion of practicum, and full-time graduate student standing in Clinical Psychology.

5093 Seminar in Psychology

This seminar course includes reading, reports, and discussion of special areas in psychology. May be repeated for credit.

Prerequisite: consent of the Graduate Studies Committee.

5094 Research in Psychology

Laboratory or field research is carried out under the supervision of a faculty member.

Prerequisite: consent of the Graduate Studies Committee.

5099 Dissertation Research

Prerequisite: admission to candidacy and consent of the Graduate Studies Committee.

5285 Evidence-Based Therapies

This course will offer instruction on evidence-based treatments in clinical psychology which are disorder based. The content rotates each year, and repeats every four years. The following therapies are included: Prolonged Exposure Therapy (first half of the summer) and Cognitive Processing Therapy (second half of the summer): Dialectical Behavior Therapy and Integrative Behavioral Couples Therapy; Interpersonal Therapy and Acceptance and Commitment Therapy; Motivational Interviewing and Seeking Safety.

5101 Basics of Neuroanatomy

This course will introduce the students to basic neuroanatomy as it informs which the neural and physiological underpinnings of behavior.

5102 Fundamentals of Clinical Management

The course is designed to provide students with the basic skills required as they begin to evaluate and treat clients. The course will focus on evidence-based practices for conducting clinical interviews, responding to crisis situations, and evaluating/managing suicide risk with diverse patient populations.

5310 Psychodynamic Psychotherapy (Elective)

Psychodynamic psychotherapy is an evidence based method of treatment that as various goals, depending on the client. These may include relief of symptomatic suffering, as well as decreased levels of character pathology and increased reflective functioning.

5360 Developmental Psychopathology (Elective)

This seminar focuses on typical and atypical life course issues of early attachment and adult attachments. It reviews attachment theory research and the relevance of the discoveries to clinical work, child-care, and education. This course will highlight the importance of developmental psychology to psychotherapy and psychopathology.

The course will center upon case descriptions from diverse backgrounds with an emphasis upon translating theoretical understanding of developmental psychopathology from psychoanalytic and current developmental psychology traditions to clinical care.

Prerequisite: Developmental Psychology

5351 Advanced Neuropsychology (Elective)

Review of various neurological disorders and associated neuropsychological profiles in addition to related neuroimaging and neuropathological markers of disease.

Prerequisite: Introduction to Neuropsychology

5256 Forensic Psychology (Elective)

This is a survey course that provides a broad overview of the major areas of forensic psychology including consideration of evidence-based practices and individual/cultural diversity.

5285 Evidence Based Therapies (Elective)

This course is required for all first-year students, but is an elective for all other class years. The content is rotated every four years to give all students the opportunity for exposure to all evidence-based therapies. Content areas include:

Interpersonal Therapy for Depression/Acceptance and Commitment Therapy
Motivational Interviewing/Seeking Safety
Cognitive Processing Therapy/Prolonged Exposure Therapy
Dialectical Behavior Therapy/Integrative Behavioral Couples Therapy

5254 Theories and Techniques of Group Psychotherapy (Elective)

This course includes a survey of the theories, techniques, and evaluation of group psychotherapy.

CLINICAL SCIENCES

Chair, Graduate Program

Keith E. Argenbright, M.D., M.M.M.

Degrees Offered

Graduate Certificate
Master of Science in Clinical Science

FACULTY

Professors

Keith Argenbright, M.D., Tulane University, 1984; M.M.M., Carnegie Mellon University, 2009
Robert Haley, M.D., UT Southwestern Medical Center, 1986
Ethan Halm, M.D., Yale University School of Medicine, 1991; M.P.H., Harvard School of Public Health, 1997
Elizabeth Heitman, Ph.D., Rice University, 1988

Linda Hynan, Ph.D., University of Illinois at Urbana-Champaign, 1993
Joan S. Reisch, Ph.D., Southern Methodist University, 1974
Robert D. Toto, M.D., University of Illinois at Chicago, 1977
Andrew Zinn, M.D., Ph.D., UT Southwestern Medical Center, 1988

Associate Professors

Heidi Jacobe, M.D., Baylor College of Medicine, 1996; M.S.C.S., UT Southwestern Medical Center, 2008
Ronald Taussig, Ph.D., Stanford University, 1988

Faculty Associate
Frank Grassler, J.D., University of Colorado, Boulder, 1983
Vice President for Technology Development

Objectives

The overall goal of the Center for Translational Medicine's Research Education, Training, and Career Development Program is to generate a diverse biomedical workforce that will drive excellence in clinical and translational research at UT Southwestern and our partner institutions. The master's program is offered through the Graduate School of Biomedical Sciences and operates out of the UT Southwestern Center for Translational Medicine (CTM), which is the integrated home for the NIH Clinical & Translational Science Award (CTSA). We have established a highly successful multidisciplinary program. In an effort to evolve and improve over time, we strive to leverage our strengths in research education, training, and career development in order to expand and enhance our all our training programs, including the master's degree.

Center for Translational Medicine

The Center for Translational Medicine (CTM) is a member of the national Clinical and Translational Science Award (CTSA) consortium, a group of 64 medical research institutions that work together and share a common vision to improve the way biomedical research is conducted across the country, reduce the time it takes for laboratory discoveries to become treatments for patients, engage communities in clinical research efforts, and train a new generation of clinical and translational researchers.

The Center provides resources and infrastructure to enable investigators to perform cutting-edge clinical research. The staff, facilities, and resources are available to all researchers at UT Southwestern, and many resources are also available to our Council of Partners.

The mission of the Center for Translational Medicine is to provide the crucial infrastructure necessary for medical scientists to discover and apply new diagnostics and therapeutics for the detection, diagnosis, treatment, and prevention of disease and, thereby, to achieve the goal of improving our nation's health in a safe, ethical, and responsible manner that ensures an individual's well-being and the public's trust.

Education & Training Program

The CTM Education and Career Development Program strives to provide trainees with a unique and rigorous multidisciplinary program that will prepare them to become leaders of the next generation of clinical and translational investigators. As part of this initiative, UT Southwestern offers a Master of Science in Clinical Science (MSCS). In addition, it offers a graduate level Mentored Clinical and Translational Research Scholar Program (CTSA KL2; Scholar Program) and a yearlong predoctoral medical student/Ph.D. student training program (CTSA TL1).

Our vision is to enable the training and launch the careers of predoctoral and postdoctoral level trainees across all disciplines and including all partnering institutions of the Center for Translational Medicine. This will be accomplished by providing outstanding education and career development programs that meet the trainees' short-, intermediate-, and long-term clinical and translational science educational needs.

KL2 Mentored Clinical and Translational Research Scholar Program (Scholars Program) is designed to provide intense research training and career development opportunities in a multidisciplinary setting that culminate in the submission of an extramural career development grant application. Scholars include junior faculty and clinical research fellows who have protected time for research. As with the master's degree curriculum, deliverables include a completed research project, a publishable manuscript, and an extramural grant application such as an NIH K award.

The goal of the Scholars Program is to prepare junior investigators for a successful career in clinical and translational research. The CTM aims to transform junior investigators by providing resources and support needed to launch their research careers. In addition, trainees acquire competence in critical thinking, team science, leadership, biomedical statistics and informatics, and other disciplines by taking courses offered in the master's program. All CTM trainees are mentored by faculty across the UT Southwestern campus, focusing on team science that spans the spectrum of translational medicine.

Facilities

The Program holds classes and seminars in Medical School classrooms located on UT Southwestern's South Campus, which is within walking distance of major hospitals and clinics. The Program offers a flexible environment and sets achievable goals and expectations for busy clinical investigators who need to balance course work, research, patients, and their personal lives.

Requirements for Admission

The Clinical Sciences Graduate Program exists for predoctoral and postdoctoral candidates whose career goals include a significant commitment to conducting high-quality clinical and translational research in an academic medical center.

All candidates must:

- Fulfill all requirements for admission to UT Southwestern Graduate School of Biomedical Sciences;
- Have a doctoral degree in health professions/biomedical science (e.g. M.D., Ph.D., PharmD, DDS, etc.) unless applying to the predoctoral track;
- Have a current, formal affiliation with UT Southwestern or one of its CTSA partnering institutions;
- Have a minimum of 50 percent protected time devoted to the Didactic and Socratic curriculum, research project, and the research practicum;
- Submit the following essays:
    - A career development plan,
    - A personal statement answering the following questions:
        - How did you arrive at this place in your career?
        - A career in clinical/translational research is challenging, with many opportunities and frustrations. Why are you attracted to this career?
    - A description of a potential research project.
- Submit a current CV, using the standardized UT Southwestern Promotion and Tenure format; and
- Submit the four following letters of recommendation:
    - A detailed letter of support from the applicant's Department Chair, guaranteeing 50 percent protected time for a minimum of two years and funding for the candidate's salary and fringes during this time.
    - One letter of professional reference.
    - One letter from the applicant's Scientific Mentor, documenting the applicant's commitment to a career in clinical/translational research.

Curriculum

The curriculum is well suited for candidates who possess both a working knowledge of clinical medicine and excellent scholastic aptitude. Both the certificate and master's degree programs are designed to be completed in two to three years, depending on the amount of time the individual can commit to the didactic curriculum. Program requirements are tailored to meet the individual academic needs of each candidate by the Program. Required course work may include didactic courses in basic biostatistics, epidemiology, clinical advisor research design, translational research, grant-writing skills, and data analysis and management. Also, students may take courses from other institutions that have similar clinical research or public-health programs, with prior permission of the Clinical Sciences Graduate Program Director.

Trainees entering the Program with previous academic work in an equivalent program at any institution of higher education may waive up to 12 credit hours upon entry to the Program with faculty approval.

Graduate Certificate

Didactic Curriculum: 3-11 hours depending on goals established in career development plan

Socratic Curriculum: Active participation and regular attendance at seminars, lectures, workshops, etc.

Research Practicum: 9-15 hours depending on goals established in career development plan

Master's Degree

Didactic Curriculum: 21-27 hours

Socratic Curriculum: Active participation and regular attendance at seminars, lectures, workshops, etc.

Research Practicum: 9-15 hours

COURSE DESCRIPTIONS

Didactic Curriculum

5096 Special Topics

This course is designated for independent or group study as directed by a faculty instructor and approved by the Program's Steering Committee and faculty directors. [FALL, SPRING, SUMMER] (1-3 credit hours)

5097 Directed Research

Research and writing efforts guided by the trainee's scientific mentor(s) and Program leadership. Deliverables will be reviewed and approved by Program leadership. (FALL, SPRING, SUMMER) (1-15 credit hours)

5105 Ethics in Clinical Science

Introduction to ethical reasoning and related processes, techniques of settling disagreements among people, treatment versus research, informed consent, clinical research relevant to third parties, dealing with unexpected scientific and clinically important findings, getting what you want from mentors, consent and risk issues with unproven biological markers, conflicts of interest/duty, handling misconduct and fraud, ethics of subject recruitment, compensating for injuries or medical errors in research, talking to media, public policy advising, authorship order and publications, gender and ethnicity in sciences careers. [FALL of odd-numbered years] (1 credit hour)

5106 Grant Writing and Funding Strategies

This course will review the different types of federal grant mechanisms as well as grants or contracts from research foundations, advocacy organizations, and industry. How to write a persuasive, well-reasoned application will be the main focus of the course, including the budget, resources and environment, preliminary data, and the research plan. [FALL] (1 credit hour)

5111 Translational Science Forum

This seminar provides an open community-based opportunity for early-career clinical investigators to improve their skills in clinical research design and analysis and in the presentation of research plans and data. Participants will achieve this goal by mastering key aspects of the thinking process of clinical research in a lighthearted, but critically analytical environment. Expert panel members will ask the presenter general and specific questions about all aspects of the research proposal and provide lively critiques of the substance and style of the research proposals. [FALL, SPRING] (1 credit hour)

5114 Preparing a Journal Report

Included are general writing skills and strategies; preparing an empirical article, including tips on writing the abstract, introduction, aims, methods, results and discussion/conclusion sections of a peer-reviewed journal article. Students are required to submit a journal article and review others' articles. [FALL] (1 credit hour)

5115 Clinical Research from Proposal to Implementation

Basic elements of a research proposal and implementation are covered. Topics include regulatory approvals; continuing regulatory oversight; monitoring patient safety; recruitment; clinical assessments; data treatment, data collection, entry, and auditing; provision of experimental tests/tasks; data analyses; and publication planning. [FALL] (1 credit hour)

5118 Sucessfully Obtaining an R (SOAR) Grant Writing Seminar

SOAR is designed to increase NIH R-type grant acquisition success rates in basic, translational, and clinical research. SOAR includes topics such as demystifying the grant writing process, grantsmanship, surviving the NIH study section review, writing tips and tricks, navigating NIH requirements, peer-review, etc. [FALL, SPRING] (1 credit hour)

5119 K Grant Writing Seminar

This seminar is intended for trainees who are writing and submitting K grants. Participants attend each session, engaging in a peer review of each other's specific grant section. Faculty experts are brought in to enhance the learning experience. [FALL, SPRING, SUMMER] (1 credit hour)

5209 Practical Clinical & Translational Research Protocol Development

This covers defining and developing a research question; distinguishing between correlative and mechanistic questions; matching methods to questions; understanding bias and confounding, random, and systemic error; quantifying clinical information. Additionally, practical aspects of research protocol conceptualization and development are covered. Enrollees have the opportunity to learn how to translate a research question into a hypothesis; how to identify and describe hypothesis-appropriate study subjects and study measurements; select a specific study design appropriate to the research question and resources available; synthesize the elements into a study plan; and develop a statistical section and analytical plan. Protocols developed by enrollees form the primary basis for group discussions. [SPRING] (2 credit hours)

5203 Clinical Pharmacology and Drug Development

Included are pharmacokinetics; pharmacodynamics; drug absorption, distribution, metabolism, and elimination; drug-drug and drug-disease interactions; preclinical drug development (Phase I, II, III and IV); proof-of-concept and dose-finding studies; post-marketing surveillance. [SPRING of odd-numbered years] (2 credit hours)

5207 Introduction to Patient Centered Outcomes & Comparative Effectiveness Research
This course covers the methods used in outcomes and health services research, which include research design, theory, measurement, methods of analysis, and evaluation of published research. Course objectives are to: 1) Describe basic concepts, definitions, and types of outcomes and health services research; 2) Understand structure, process, outcomes and underuse, misuse, or overuse of conceptual models; 3) Identify common approaches and challenges in measuring cost, quality, access, and equity in health and health care; 4) Describe experimental and observational research designs used to assess the impact of health services (drugs, devices, procedures, strategies, delivery, and financing systems) on patient-oriented, clinical, and resource-use outcomes. [SPRING] (2 credit hours)

5208 Essentials of Leadership & Management for Researchers

This course is a structured review and discussion of the basics of management and leadership theory and practice. Topics include project management and budgeting, information systems, leadership style, effective interviewing and hiring techniques, conflict resolution, and the basics of organizational culture. Predominant theories and research, as well as shared experiences of the instructor and the group, are discussed in order to enhance each participant's effectiveness as a manager and leader. Several hours are spent throughout the course understanding and analyzing federal and state health policy (current and proposed) and the implications for the independent researcher. The curriculum combines assigned readings, didactic lectures, active group discussion, a mid-term project, and a final examination. [SPRING] (2 credit hours)

(TBA) Developing & Commercializing Biomedical Research
This course reviews basic concepts in developing and commercializing research in biomedical sciences. Students will learn principles of designing experiments for clinical and regulatory

relevance, discerning inventions from research data, obtaining intellectual property legal protection, structuring licenses of inventions to existing companies, forming new start-up companies, attracting investment capital, and regulatory approval of products for human therapy.

5301 Introduction to Principles & Methods of Clinical & Translational Research

This class presents basic and intermediate principles in research design; formulation of the research question; identifying primary and secondary hypotheses; use of control groups and pre-specified hypotheses; surrogate measurements; analysis of incomplete data; meaning of P values and confidence intervals; and identification of bias and flaws in study design. [FALL] (3 credit hours)

5302 Biostatistics for Clinical Science II

Topics to be considered are linear and logistic regression models (control of confounding and predictive models); categorical data analysis (binomial and Poisson distributions); analysis of paired categorical data; nonparametric methods for ordinal data; survival analysis (Kaplan-Meier curves, hazard functions, types of censoring, log-rank tests, and generalized Wilcoxon tests, Cox regression model). [SPRING] (3 credit hours)

Prerequisites: CTM 5391 or 5309

5307 Epidemiology for the Clinical Investigator

This course offers considerations such as concepts of multivariate causality; criteria for establishing causality; risk; rates; incidence, prevalence and attack rates; incidence density; crude, specific and adjusted rates; relative risk, odds ratio, case-fatality rate and attributable risk; sampling error, selection bias, information bias, definition bias and confounding; statistical techniques to control for bias; variables; overview of statistical analysis; multiple comparisons correction; study designs to avoid bias; survey and sample selection, cross-sectional, cohort, case-control; prospective versus retrospective; attributes of cohort studies; design principles of case-control studies; types of control groups; strategies of matching in case-control studies; experiential introduction to statistical computing for different types of clinical epidemiology studies. [SPRING] (3 credit hours)

5309 Biostatistics I

This course includes a conceptual approach to statistical analysis of biomedical data; review of fundamental statistical principles, focusing on explanation of the appropriate scientific interpretation of statistical tests rather than the mathematical calculation of the tests themselves. The course covers all topics typically used in biomedical publications (data description, summary statistics, p values, non-parametric tests, analysis of variance, correlation, regression, statistical power, and sample-size estimation). [FALL] (3 credit hours)

Socratic Curriculum

The highly innovative Socratic curriculum complements the didactic curriculum. The Socratic curriculum consists of a rich selection of seminars and workshops, conducted using an interactive approach to provide continuous opportunities for clinical investigators to exchange ideas, apply knowledge, present and defend their work, critique the work of others, and participate in forums mimicking real-life conditions of peer review.

Translational Science Forum

Weekly presentations of research proposals to a peer group audience by early-career clinical investigators with lively critiques of substance and style by a panel of senior clinical investigators, with the intent of making key points of interest to all investigators.

Navigating CT Science Academic Careers

This workshop focuses on important issues for junior faculty, for example: negotiating for protected time, equipment, resources, promotion, salary, achieving career milestones, surviving in academic medicine, and other career-building topics.

Responsible Conduct of Research

This seminar examines regulatory requirements of clinical research (IRB, GCP, HIPAA, and investigational filings); ensuring patient safety; interactions with government and industry; contract negotiations; successful strategies and tactics. This meets the NIH requirement for training in RCR.

Research Practicum

Research Project

The Research Project is a hands-on research training experience. Depending on the trainee's prior research experience, it may serve as an introduction to clinical or translational research practices, or as an advanced experience as a PI to oversee a multidisciplinary research team. The study should examine an important clinical and/or translational question, and the goal is to obtain interpretable data that can advance the field and the trainee's academic career. The trainee should be actively involved in the analysis of data, protocol development/gaining IRB approval/accrual of patients as applicable in order to gain a breadth and depth of experience. The trainee should be involved in presenting data at meetings and publish papers when appropriate. The project will lay the foundation for the publishable manuscript and the extramural grant application. Early and frequent consultation with a multidisciplinary team is strongly recommended.

Publishable Manuscript

The trainee will write and submit a manuscript for publication (as first author) describing the findings of the research project. In an effort to establish himself/herself as an expert in the field, the trainee should discuss current knowledge and provide unique insights. The trainee is

expected to cite related literature and raise specific questions that need to be addressed in future research. The manuscript must be related to the research project (above) and address primary data. In the event that in spite of excellent research effort, the data are not suitable for publication, then a critical literature review in a manuscript format on the topic of research may be submitted in lieu of a primary research manuscript (with approval).

Extramural Research Grant Application

As the capstone to the program, the trainee writes and turns in a complete and submitted extramural grant application. In the majority of cases, the trainee will submit a NIH career development grant (NIH K23, K08) or equivalent foundation grant. In some cases, the trainee may submit a R21, R01 or equivalent independent grant. If planning to submit a grant to other agencies, the trainee should seek approval by the Career Development Committee in advance. The research grant proposal will use standard NIH forms (or similar forms for foundation-based awards). The research proposal should be based on the trainee's prior research (project and manuscript(s) must form the background and significance of the proposal). The grant application will be developed with the close advice and guidance of the trainee's mentor(s) and multidisciplinary team.

Career Development

The Center for Translational Medicine's Education and Career Development programs enhance the knowledge and skills required for the performance of high-quality innovative clinical and translational research, advancing the development of trainees planning a career in or interested in contributing meaningfully to clinical or translational research. Specific program activities are closely related to career development and available for trainees formally enrolled in the Program.

Mentoring

The mentoring of early-career medical researchers is critical to their academic and scientific success. Access to one or more senior colleagues who has demonstrated a career of scientific prowess, is willing to facilitate, nurture and transfer the necessary behaviors for personal and professional growth and understands the vicissitudes of academe and its institutions has been recognized as a vital factor for setting the stage for potentiating the career of the mentee. Studies have shown that young researchers and junior faculty members who identified a mentor felt more confident than their peers, were more likely to have a productive research career and reported greater career satisfaction. Furthermore, as an added bonus to the providing institution, departments that deliberately assist their new members in learning how to thrive in an academic research culture gain the benefit of improved productivity, stability, loyalty and leadership capacity.

UT Southwestern recognizes that a successful mentoring program is dependent on the availability of willing and effective mentors. When a faculty member is identified as being either a scientific or humanistic mentor, a formal communication is sent to the mentor. This communication consists of a) formal notification of their role as a mentor in the UTSW Scholars

program; b) the name of their mentee; c) their defined role in the mentee's training – scientific mentor, humanistic mentor, or both; d) a copy of the UTSW Mentor Guidelines; e) how and when to contact program faculty/staff with issues regarding their mentees; and f) formal recognition and gratitude for the critical role these mentors play in the academic success of their mentee. This formalized process of mentor notification has been in place for the last three years with overwhelming success. The mentors frequently contact program leadership to discuss specific issues with their mentees, allowing the program faculty/staff to muster additional resources for the students. The Mentor-Mentee Guidelines/Agreement are the basis for the relationship, and contain explicit expectations for mentors and mentees alike.

Education & Mentoring Oversight Committee

The Education & Mentoring Oversight Committee establishes Program policies and processes, reviews student and mentor feedback and other training program evaluation data, reviews and develops courses, reviews and approves research practicum projects, and makes final decisions on degree completion. It has a fundamental role in the evaluation and continuous development and implementation of the Program.

PROGRAMS

POSTDOCTORAL SCHOLARS TRAINING PROGRAM

Postdoctoral scholars are recognized as crucial participants in keeping UT Southwestern at the forefront of biomedical research. The objectives of the Postdoctoral Scholars Training Program are to extend the traditional best practices of postdoctoral training in basic sciences at UT Southwestern and to make available new initiatives to improve training. The ultimate goal is to provide a structured Program to aid the transition of each scholar to career independence through the development of professional and research skills.

• Qualifications

A postdoctoral scholar must have earned a Ph.D., M.D., or equivalent doctoral degree and perform research in a specialty area under the supervision of a faculty mentor. Postdoctoral training presupposes that the scholar is capable of independently executing original research under the guidance of the postdoctoral mentor. Appointment as a postdoctoral scholar is limited to six years, including postdoctoral training received at other institutions, either inside or outside the United States.

• Organization of the Program

All postdoctoral scholars are enrolled in a Certificate Program that includes multiple tracks, each of which is intended to be completed in two years. Postdoctoral scholars register for three hours of course work in the fall and spring terms and two hours of course work in the summer term. The Program is organized as continuing professional training and is graded on a pass/fail system. Certificates are offered in a variety of tracks, each of which includes required course work. A certificate is awarded upon completion of 15 credit hours of training. Beginning

postdoctoral scholars are enrolled in the research track, which has requirements for course work in ethics, career advancement, supervised research, and their Individual Development Plan. Additional certificate offerings include Advanced Research, Scientific Management, Cancer, and Educational Techniques.

• **Benefits**

In addition to providing postdoctoral scholars with unique experiences in specialized research and advanced course work, the Program affords access to career and professional development resources offered by the Graduate Career Development Office. Additional benefits include health insurance and other employment benefits, support services, and fitness and recreation opportunities at the Bryan Williams, M.D. Student Center, computer and software assistance, and the lowest campus parking rates.

MEDICAL SCIENTIST TRAINING PROGRAM

The Medical Scientist Training Program (MSTP) at UT Southwestern integrates medical and research training for qualified individuals at the graduate level leading to both M.D. and Ph.D. degrees. The goal of the Program is to prepare individuals as physician-scientists. Graduates of this Program typically pursue careers in academic medicine and biomedical research at the nation's leading institutions.

This Program offers students an integrated curriculum in the scholarly setting of UT Southwestern Graduate School of Biomedical Sciences and UT Southwestern Medical School. The MSTP curriculum is flexible and individualized to suit the background and interest of each medical scientist fellow. The program is designed to be completed in approximately seven to eight years. Additional time is allotted if needed to meet requirements for the Ph.D. degree.

• **Prerequisites**

A baccalaureate degree is required, and significant experience in laboratory research is essential for admission. It is desirable, but not mandatory, that the minimum prerequisites for admission to UT Southwestern Medical School be supplemented by one year of college calculus and one year of physical chemistry. Potential applicants who have not had prior experience in a research laboratory should gain such experience before considering a career in academic medicine and medical research. For Medical School students, it is possible to acquire the necessary research experience after entering and to apply to the MSTP during the first or second year of medical school.

• **Medical Scientist Fellowships**

The Medical Scientist Training Program is the recipient of a training grant from the National Institute of General Medical Sciences of the National Institutes of Health. Support for the Program also is provided by other sources. All students accepted into the Program receive stipend support and full funding for tuition and fees.

There is no priority assigned to an applicant's state of residency. MSTP fellows come from all over the United States, and a limited number of positions with full support are available to international applicants.

• Organization of the Program

Through the course of the Program, M.D./Ph.D. fellows are enrolled in UT Southwestern Medical School or UT Southwestern Graduate School. Students who complete the MSTP will have met all requirements for the Ph.D. degree in the Graduate School and for the M.D. degree in the Medical School. The Ph.D. may be earned in one of the basic science graduate training programs within the Division of Basic Sciences. Program faculty are derived from both basic science and clinical departments of the Medical School.

The schedule includes the first two years of medical school with summer laboratory rotations prior to and following the first year and again following the second year. The summer laboratory rotations are research apprenticeships to aid the student in selecting a research area and a mentor for research training. These apprenticeships are established by discussion with each student, the MSTP Committee and the potential preceptor. They are intended to expose the student to a variety of excellent laboratories in his or her area of interest.

• Application Procedure

The process for admission to the MSTP can be viewed at the website www.utsouthwestern.edu/mstp. Application to the MSTP is made via the American Medical College Application Service. Concurrent application to the medical school alone is permissible via the Texas Medical and Dental Schools Application Service.

GRADUATE STUDENT INFORMATION

ADMISSIONS

Key dates include:

- **August 1:** Application begins
- **December 1:** Application Deadline
- **January – March:** Interviews and offers made
- **April 15:** Applicants must inform graduate school of decision
- **Mid-August:** Courses and rotations begin

Information regarding admissions and online application is available on the UT Southwestern website at www.utsouthwestern.edu/graduateschool/index.html. Electronic application is required. Application procedures and deadlines are detailed on the application website.

Requirements for Admission

There are three minimum requirements that must be met in applying for admission as a regular graduate student:

1) A bachelor's degree or its equivalent from an accredited institution in the United States or proof of equivalent training at a university in another country. Each applicant is required to have one official transcript from each institution of higher learning attended (including postgraduate studies) sent to the Office of Enrollment Services.
2) Evidence of relevant academic preparation for the graduate training sought. If the bachelor's degree was earned in an unrelated field, evidence of prior formal preparation (usually via postgraduate studies) must be submitted.
3) Scores on the Graduate Record Examination General Test. International students from countries where English is not the official language must also submit scores on the Test of English as a Foreign Language.

Applicants must request that the Graduate Record Examination (GRE) and TOEFL scores be sent directly to the Office of Enrollment Services. The code number for UT Southwestern Medical Center is R66860.

Essential Functions

All individuals who apply for admission to the Graduate School must be able to perform specific essential functions in order to complete a graduate program curriculum, including original research. No applicant who can perform the essential functions – either with or without reasonable accommodations – will be denied consideration for admission. Information regarding how to request reasonable accommodation due to disability and UT Southwestern's Learners with Disabilities Policy is available from Student Academic Support Services. This information is also included in the material sent to all accepted applicants.

The following are essential functions for graduate students at UT Southwestern Medical Center. Each graduate program may require additional essential functions to accommodate unique aspects of that program, and such requirements may be subject to change.

1) Communication: Graduate students must be able to communicate effectively and efficiently orally and in writing. Candidates also must be able to read and comprehend written material.

2) Intellectual and Cognitive Abilities: Graduate students must be able to measure, calculate, reason, analyze, synthesize, integrate, and apply information. Problem solving, the main challenge in research, requires these intellectual abilities.

3) Behavioral and Social Attributes: Graduate students must possess the emotional health required to use their intellectual abilities fully, including good judgment, maintaining an appropriate work schedule, and meeting program expectations on schedule. Graduate students must be able to tolerate challenging workloads and function effectively under stress. They must be able to adapt to changing circumstances and learn to function in the face of uncertainties and ambiguities inherent to the research enterprise. Integrity, concern for others, and interpersonal skills are all needed for success in graduate studies.

4) Ethical Standards: Graduate students must demonstrate professional demeanor and behavior and must perform in an ethical manner in all dealings with peers, faculty, and staff of UT Southwestern Medical Center and with patients, where appropriate.

Evaluation of Applicants

Admissions decisions will be made in accordance with UT Southwestern's institutional admissions policy and the Graduate School of Biomedical Sciences admissions policy, and based on the program-specific requirements and procedures outlined herein.

Admission Committees for individual graduate programs consider all of the following in evaluating each applicant:

1) Scores on the Graduate Record Examination General Test if provided (required for Clinical Psychology);
2) Academic performance in college as reflected in the grade-point average;
3) The rigor of the undergraduate curriculum and its appropriateness as preparation for study in the graduate program sought;
4) Recommendations from appropriate professors and/or mentors;
5) Experiences in scientific research activities;
6) Socioeconomic background;
7) Ability to communicate in English;
8) Personal integrity;
9) The applicant's statement of motivation for a career in scientific research and/or teaching.

A personal interview may be initiated by invitation from the appropriate Admissions Committee. The Committee interviews applicants who are viewed as having the greatest likelihood of succeeding in graduate study based on the listed considerations. The interview provides further evidence of acceptability.

Individual programs may have one or more additional requirements specific to the area of training. Any additional requirements or considerations can be found in descriptions of individual programs.

Use of Race or Ethnicity in Admissions

Programs within the Division of Clinical Science (DCS) do not consider race or ethnicity in the admissions process. All programs within the Division of Basic Science (DBS) (e.g., Biological Chemistry, Biomedical Engineering, Cancer Biology, Cell and Molecular Biology, Genetics, Development and Disease, Immunology, Integrative Integrative ~~Biology~~ Molecular and Biomedical Sciences, Molecular Biophysics, Molecular Microbiology, Neuroscience, and Organic Chemistry) consider race or ethnicity as one factor in an individualized, holistic approach to identify applicants whose qualities, attributes, and accomplishments indicate that they will contribute to the missions of the Graduate School and be successful in their course of study.

REGISTRATION

Before registering, both new and continuing students must consult their graduate advisers regarding specific courses and obtain approved course registrations. Permission must be secured from the appropriate instructor to enroll in classes outside the student's major program. Registration is completed with the Office of Enrollment Services through the Graduate Program office.

Late registration will be allowed only by permission of the instructor(s) responsible for the course or courses the student wishes to take, with concurrence of the Dean, and is subject to a late registration fee.

The typical academic load in credit hours varies with the program and other factors. The minimum full-time registration is nine hours in a fall or spring term and six hours in the summer term. Changes in course load (adding or dropping) during a term require written approval of the student's graduate adviser, the faculty member teaching the course and the Director of Enrollment Services (see also the Expenses section). A course may be added or dropped without record of the student's performance only during the first 12 academic days (nine academic days for the summer term). After that time, if the student withdraws from a course, a grade of WP (Withdrew-Passing), WF (Withdrew-Failing) or W (Withdrew) will be assigned.

A student must be registered currently for the appropriate dissertation or thesis course to receive advice or direction from his or her mentor(s) during the preparation of a thesis or dissertation. A student is required to be registered during the term in which the oral defense examination of the thesis or dissertation is held.

Student Responsibility

Students are responsible for understanding degree requirements and for enrolling in courses necessary for their individual degree Program. Each student also is responsible for knowing University regulations regarding the standard of work and conduct required for continued enrollment in the Graduate School. If a student needs additional information, the Graduate School office should be consulted. To obtain a complete list of requirements for a particular degree, the student should combine the general requirements detailed in this section with the special requirements listed under his or her Graduate Program of choice.

ENROLLMENT

Students are expected to be enrolled full time for the duration of their studies at UT Southwestern. First-year students in the Division of Basic Science take 12 credit hours in the fall term, 12 credit hours in the spring term and six credit hours in the summer term. In subsequent years they are enrolled in nine credit hours in the fall, nine credit hours in the spring, and six credit hours in the summer.

Typically, didactic course work is completed in the first one to two years, and then students are enrolled for research seminars or Journal Clubs totaling full-time enrollment equivalency. Course requirements for each Graduate Program are listed in the appropriate chapters of this catalog and online at www.utsouthwestern.edu/graduateschool/index.html.

SPECIAL GRADUATE STUDENTS

Under exceptional circumstances, individuals wishing to enroll in graduate courses for credit, but who have not been admitted as regular graduate students, may do so provided they:

1) Complete the special student application form from the Office of Enrollment Services;

2) Present satisfactory evidence of preparation for the course and secure written permission from the instructor of the course involved;

3) Secure written approval of the Dean; and

4) Pay all appropriate fees and costs.

Such special graduate students may enroll for no more than nine credit hours in one term, 18 credit hours in total. Registration will be permitted only if undue crowding of facilities will not result.

AUDITORS

Permission to audit a graduate course may be granted only under exceptional circumstances. An individual wishing to enroll as an auditor may do so if he or she meets the same four requirements stipulated for special graduate students. Auditors may enroll for no more than six credit hours in one term and nine credit hours in total. Auditors do not receive academic credit for courses in which they have enrolled.

CONCURRENT ENROLLMENT

UT System Institutions

A student concurrently enrolling at more than one of the three UT System components in North Texas (UT Arlington, UT Dallas, and UT Southwestern) may register and pay tuition and fees for all courses through the student's home campus. Detailed procedures may be obtained from the Office of Enrollment Services of the student's home campus. The concurrent enrollment agreement and waiver of specified fees apply only to students following the concurrent enrollment procedures specified by the Office of Enrollment Services at the home campus.

The charges for tuition at an appropriate rate, applicable laboratory fees, and general fees will be assessed and collected at the home institution for the other institution. Student services at the second institution will be made available to concurrently enrolled students paying the appropriate fees at the second institution. The three institutions have a reciprocal agreement for honoring parking permits. Details may be obtained from the Parking Services Office of the home campus.

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

Other Public Institutions of Higher Education

When a student registers at more than one public institution of higher education in Texas, tuition is determined in the following manner:

1) The student will pay the full tuition charges to the first institution at which he or she is registered.

2) If the minimum tuition at the first institution is the same as or greater than the Medical Center's minimum, the amount charged for tuition will be the hourly rate.

3) If the minimum tuition at the first institution is lower than the Medical Center's minimum, the amount charged for tuition will be the difference in the minimum charges, but in no case will the amount charged for tuition be less than the Medical Center's hourly rate.

Other applicable fees will be charged. Students desiring to take advantage of the concurrent enrollment plan should bring a copy of the fee receipt from the other institution when registering at the Medical Center.

Courses of Instruction

Graduate courses offered at UT Southwestern are listed under program descriptions. The unit of measure for credit in graduate work is a credit hour. A four-digit system generally is used for designating courses, with the second digit indicating the number of credit hours. If the second digit is zero, this indicates the course is offered for varying hours of credit. Certain courses, such as research and seminar, may be repeated for credit.

A student who is admitted to a graduate program in UT Southwestern Graduate School of Biomedical Sciences may apply for permission to take one or more courses on the campus of one of the private universities in Dallas or at any other component of The University of Texas System.

REQUIREMENTS FOR GRADUATE DEGREES

General

1) The student must demonstrate a high order of scholarly achievement in his or her chosen field of study, including appropriate research and professional competencies. The Program Steering Committee, through designated graduate advisers and mentors, determines the student's program of study and evaluates whether adequate mastery has been acquired.
2) For any graduate degree, a student must be in academic residence for at least two terms of full-time enrollment. In practice, the master's degree usually requires one to two years of graduate study while the doctorate usually requires four or more years. (Some courses used to meet this requirement may be taken at other universities participating in an interinstitutional program.)
3) The student must discharge all financial and other obligations to the Medical Center. In the event of nonpayment, one or more actions may be taken by the Dean: 1) readmission may be denied; 2) a student's grades and official transcript may be withheld; and 3) the degree to which the student would otherwise be entitled may be withheld.

In addition to the foregoing general requirements, there are specific requirements in each degree program (refer to Program descriptions for further information).

Specific Requirements for the Master's Degree

Each Program Steering Committee determines the number of hours of course credit required for the master's degree. Additionally, the program specifies whether the student is required to complete a thesis, or its equivalent, that is acceptable to a Supervisory Committee appointed to direct and evaluate the thesis.

Master's degree candidates from a Program requiring a thesis must submit to the Graduate School office an electronic copy of the thesis, as well as a report of the final oral examination signed by the Supervisory Committee members. These documents, as well as research papers, can be made available to interested members of the public

For a master's degree by examination, the Program Chair must submit to the Graduate School office a written report documenting that the degree requirements have been met. Deadline dates for submission of approved theses for each term are published in the annual academic calendar from the Office of Enrollment Services.

Specific Requirements for the Degree of Doctor of Philosophy

Each program specifies a minimum number of credit hours to meet requirements for admission to candidacy in the program. In all programs, students must pass a qualifying examination, as specified by the program, in order to demonstrate mastery of and the ability to perform scholarly work in a field.

When the student is deemed by the Program Steering Committee to have met all academic requirements and has passed the qualifying examination, he or she is formally admitted to candidacy. The degree is awarded after the candidate has conducted independent research under the guidance of a supervising professor, prepared a dissertation, and successfully defended it in an oral examination before an appointed Committee.

Doctoral degree candidates must submit to the Graduate School office an electronic copy of the dissertation and a report of the final oral examination signed by the Supervisory Committee members. Deadline dates for submission of approved dissertations for each semester are published in the annual academic calendar prepared by the Office of Enrollment Services.

Graduation

Degrees may be conferred at the end of any term, but only one commencement ceremony is held each year – at the end of the spring term. All students on whom degrees have been conferred since the previous graduation will be listed in the commencement program.

ORGANIZATIONS

Graduate Student Organization

Established in 1973, the Graduate Student Organization is directed by an Executive Committee consisting of elected representatives from each of the Graduate Programs. This Committee serves as a formal liaison between the graduate students and administration. It also sponsors social functions and is responsible for supplying information to new and prospective students.

A number of other organizations offer students at UTSW opportunities for association with individuals of shared interests or backgrounds. Information on registered or sponsored student organization can be found in the “General Information” section of the catalog.

A list of organizations is available from the Bryan Williams, M.D. Student Center or on the UT Southwestern website at:

http://www.utsouthwestern.edu/life-at/campus-academic-life/student-center/student-orgs/index.html#

Online Catalog School of Health Professions:
https://www.utsouthwestern.edu/education/utsw-catalog/shp/

Contains:

School Description
Accreditation
School Academic Administration

Purpose
Academic Calendar

Student Information

Degrees and Certificate Programs

Admissions
- Evaluation of Applicants
- Admission Status
- Essential Functions
- Students with Disabilities
- Background Check
- Policy Against Discrimination
- Residency Defined
- Active Military Service
- Academic Fresh Start
- Required Immunizations
- AIDS, HIV and Hepatitis B Virus Policy
- Bacterial Meningitis
- Distance Learning

Tuition, Fees
- Designated Tuition
- Tuition Installment Payments
- Computer Usage and Technology Fees
- Graduation Fee
- Health Insurance
- Disability Insurance
- Incidental Fees
- Laboratory Fee
- Late Registration Fee

- Malpractice Insurance Fee
- Medical Services Fee
- Returned Check Fee
- Student Services Fee
- Books and Equipment
- Parking
- Microscopes
- Student Housing

Financial Aid

Programs
- Clinical Nutrition
- Clinical Rehabilitation Counseling
- Health Care Sciences
- Physical Therapy
- Physician Assistant Studies
- Prosthetics-Orthotics
- Radiation Therapy

Student Organizations
Commencement
Alumni Association

UT Southwestern School of Health Professions

In 1968, Dr. Charles C. Sprague, then Dean of The University of Texas Southwestern Medical School, initiated the planning for a new School of Allied Health Professions in Dallas. Dr. Richard D. Burk, Chairman of the Department of Physical Medicine and Rehabilitation, was named the first Dean of the School in February 1969. Under his leadership and with the assistance of Associate Dean Harry J. Parker, students were first enrolled in baccalaureate programs for the 1970-71 academic year in Medical Technology, Physical Therapy, and Rehabilitation Science, and in a post-baccalaureate Dietetic Internship.

Dr. John W. Schermerhorn was the first Dean of the School, appointed in August 1971. He was succeeded by Dr. William J. Gonyea in 1985. In 1988, Dr. Vernie A. Stembridge assumed duties as interim Dean. Dr. Gordon Green was appointed Dean in January 1991. In 2006, Dr. Raul Caetano became Dean and served until 2015. Dr. Jon Williamson was appointed Dean of the School in October 2015 after serving as interim Dean for nine months.

The School was renamed the UT Southwestern School of Health Professions in 2008. The School originally was housed in Methodist Hospital's School of Nursing facilities. From August 1973 until June 1983, it occupied facilities at 6003 Maple Ave. In 1983, the School relocated to the Locke Building, 6011 Harry Hines Blvd. The building subsequently was remodeled and renamed The University of Texas Southwestern Allied Health Sciences School Building (now the UT Southwestern School of Health Professions Building). Permanent facilities in the building include classrooms, clinics, laboratories, and administrative offices for most Departments of the School.

Accreditation

Institutional accreditation for The University of Texas Southwestern Medical Center is contained within the "General" section of the catalog at:

(HYPERLINK)

Education Program Accreditations

The Master of Clinical Nutrition Coordinated Program is granted accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics.

The Master of Clinical Rehabilitation Counseling Program is accredited as a Rehabilitation Counseling Entry-Level Specialty Area by the Council for Accreditation of Counseling and Related Educational Programs.

The Doctor of Physical Therapy Program is accredited by the Commission on Accreditation in Physical Therapy Education.

The Master of Physician Assistant Studies Program is accredited by the Accreditation Review Commission on Education for the Physician Assistant.

The Master of Prosthetics-Orthotics Program is accredited by the Commission on Accreditation of Allied Health Education Programs upon the recommendation of the National Commission on Prosthetic & Orthotic Education.

The Master of Radiation Therapy Program is accredited by the Joint Review Committee on Education in Radiologic Technology.

Academic Administration

Jon W. Williamson, Ph.D.
Dean

Kim Hoggatt Krumwiede, Ph.D., CMI
Associate Dean for Academic Affairs

Scott A. Smith, Ph.D.
Assistant Dean for Research
Acting Chair, Health Care Sciences

Jeffrey Browning, M.D.
Chair, Clinical Nutrition

Robert Drake, M.S., CRC
Interim Program Director, Clinical Rehabilitation Counseling

Temple Howell-Stampley, M.D., MBA, FACP
Chair, Physician Assistant Studies

Ross G. Querry, P.T., Ph.D.
Chair, Physical Therapy

Leslie Gray, M.Ed., C.P.O., L.P.O., FAAOP
Program Director, Prosthetics-Orthotics

Kameka Rideaux, MBA, RT(R)(T),
Program Director, Radiation Therapy

Purpose

UT Southwestern School of Health Professions has several leadership responsibilities within the Medical Center. Its primary function is the academic preparation of health professionals at various levels: post-baccalaureate certificate, masters, and doctorate. In doing so, its faculty also provides structured preparation for students in clinical settings, offers high-quality patient care and client services, and takes part in ongoing research and professional development.

The mission of the School of Health Professions is to:

1. Prepare health professionals of the highest quality to meet the needs of the health care system in Texas;

2. Advance knowledge of the health professions through the development and maintenance of research programs related to health care;

3. Consult, provide services and collaborate with other institutions and agencies to meet the health care delivery and health education needs of the citizens of Texas through interdisciplinary education and promotion of comprehensive health care; and

4. Contribute to the continued growth and development of the health professions and the reduction of barriers to vertical and horizontal career mobility through the development of continuing education, retraining programs, and other appropriate means.

The Medical Center setting in which the School is located provides rich resources for achieving these goals. Highly respected basic and medical scientists are available to present special lectures and to consult and collaborate with members of the faculty. Clinical training facilities at teaching hospitals and affiliated institutions are readily available. In the outstanding academic environment provided by the Medical Center, the faculty members of the School expand their training through research and service activities.

Since the School's administration and faculty recognize the importance of community service, they work actively to publicize career opportunities in health care, to recruit students of varied backgrounds and all races to prepare for health careers, and to respond to the changing needs of the health care workforce.

While the School seeks to provide the most suitable environment for learning, it cannot guarantee any individual's progress or opportunities for employment.

Academic Calendar

The academic year at UT Southwestern School of Health Professions consists of three sessions. Most commonly, clinical work is accomplished during the summer term, but some Programs also schedule class work during that period.

The fall semester begins on the third or fourth Monday in August. The spring semester begins on the first or second Monday in January. The summer term begins on the third or fourth Monday or Tuesday in May. Because of their diversity, not all Programs operate on the same calendar schedule, and the student is urged to become familiar with the dates for his or her Program. Commencement is held in December.

The Office of Enrollment Services publishes a detailed academic calendar each August. The student is urged to refer to it for current information.

Degree Programs

The UT Southwestern School of Health Professions offers prospective students Programs leading to Doctor of Physical Therapy, Master of Clinical Nutrition, Master of Physician Assistant Studies, Master of Prosthetics-Orthotics, Master of Clinical Rehabilitation Counseling, and Master of Radiation Therapy:

Program	**Degree or Certificate**
Clinical Nutrition	M.C.N.
Clinical Rehabilitation Counseling	M.C.R.C.
Physical Therapy	D.P.T.
Physician Assistant Studies	M.P.A.S.

Prosthetics-Orthotics	M.P.O.
Radiation Therapy	M.R.T.

Each Program is under the jurisdiction of the appropriate UT Southwestern School of Health Professions Department Chair or Program Director. Subject to approval of the Dean, each Program has the responsibility to select applicants for admission, to evaluate the academic progress of students, to recommend which students will be regarded as candidates for degrees, and to administer all other aspects of the Program.

Each Health Professions Program welcomes inquiries about the academic program, including information about admissions or employment opportunities.

The School of Health Professions building also houses the Dallas Regional Campus of the School of Public Health, a component of the UT Health Sciences Center at Houston. The public health school offers a Doctor of Philosophy in Epidemiology, a Doctor of Philosophy and a Doctor of Public Health in Behavioral Sciences, a Master of Public Health (generalist and in Epidemiology and Behavioral Sciences), a Master of Sciences in Epidemiology and in Behavioral Sciences, and a graduate certificate in General Public Health.

For more detailed information regarding Programs of the UT Southwestern School of Health Professions, call or write:

Clinical Nutrition

214-648-1520; email, CN.sshp@utsouthwestern.edu; ZIP code: 75390-8877

Clinical Rehabilitation Counseling

214-648-1740; email, RC.sshp@utsouthwestern.edu; ZIP code: 75390-9088

Physical Therapy

214-648-1551; email, PT.sshp@utsouthwestern.edu; ZIP code: 75390-8876

Physician Assistant Studies

214-648-1701; email, PA.sshp@utsouthwestern.edu; ZIP code: 75390-9090

Prosthetics-Orthotics

214-648-1580; email, PO.sshp@utsouthwestern.edu; ZIP code: 75390-9091

Radiation Therapy

214-648-1512; email, radtherapy.sshp@utsouthwestern.edu; ZIP code: 75390-9082

Office of the Dean

214-648-1500; email, recruit@utsouthwestern.edu; ZIP code: 75390-9082

Inquiries can be sent by email to addresses listed above, or letters should be addressed to the individual program at UT Southwestern School of Health Professions, UT Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX (ZIP codes above).

STUDENT INFORMATION

Admissions

General information about the admissions process into the School of Health Professions, and into specific Programs can be found at:
http://www.utsouthwestern.edu/education/school-of-health-professions/admissions.html

The basic requirement for admission is a bachelor's degree or its equivalent from an accredited institution in the United States or proof of equivalent training at a foreign university. The applicant must have maintained satisfactory grades, especially in appropriate courses, in upper-division work (junior and senior level) and in any graduate work already completed. The applicant must submit the general test score on the Graduate Record Examination. Admission is competitive. Application must be approved by the academic Program and by the Admissions Committee in the intended major area of study.

Evaluation of Applicants

Admissions decisions will be made in accordance with UT Southwestern's institutional admissions policy, the School of Health Professions admissions policy, and established program-specific procedures, all of which are available through the Dean's Office.

The following criteria are not intended to replace prerequisites or state requirements or to negate legitimate qualifications for specific health professions. Admission decisions may be based upon any combination of the following considerations:

1) Texas residency;

2) Scores on entrance examinations;

3) Prior college-level academic performance (overall grade-point average, science grade-point average, etc.);

4) Special and unique talents and accomplishments: artistic, scientific, intellectual, manual and/or computer skills; leadership (health-related or community); participation in extracurricular activities;

5) Experience: work history (health-related or nonhealth-related), special honors, community service, and research;

6) Measures of motivation: letters of recommendation, grade improvements and trends, applicant essay (e.g., "Please discuss how your experience and environment have shaped your intellectual and personal development and your interest in health professions.");

7) Demographic and geographic information: rural or inner-city home address or ZIP code, rural or inner-city high school, magnet high school (health-related or nonhealth-related);

8) Social and economic background: first in family to attend high school or college, parents' occupations, parents' educational attainment;

9) Communication skills: writing samples, portfolio of work, interview (individual or small group), multilingual.

Use of Race or Ethnicity in Admissions

The School of Health Professions has an open admissions policy, which means all qualified applicants are considered. Race or ethnicity is not a factor in admissions or student financial assistance decisions. The School of Health Professions employs a variety of strategies and programs to achieve diversity in lieu of using race or ethnicity as a factor in admissions. The Affirmative Action Plan for the School of Health Professions is available through the Dean's Office.

Admission Status

Students may be accepted to UT Southwestern School of Health Professions in one of the following categories:

Regular Student: The applicant has fully satisfied the requirements for admission to a degree Program.

Conditionally Accepted Student: Some degree Programs accept applicants who have not fully satisfied the requirements for admission to a degree Program. Any student so admitted will agree, at the time of admission, to a specific, written plan for the removal of deficiencies. The plan must include the course name(s), the number of deficient credit hours and a time-phased schedule for completion of the course(s). The plan also will include notification that, if the terms are not met, the student will not be allowed to enroll further at UT Southwestern. All such plans for conditionally accepted students must be approved by the Dean or Associate Dean before being transmitted to the student for signature.

Special Student (not seeking a degree or certificate): Admission as a special student is possible under certain circumstances. Special students must have approval of the appropriate Program Director and the Dean or Associate Dean to register under this status. To be accepted as a special student, an applicant must provide documentation of successful completion of, or exemption from, the Texas TASP examination to the Office of Enrollment Services for approval. The applicant also must submit one or more of the following: 1) official transcript(s), 2) certified copies of diplomas and 3) official grade reports from accredited institutions.

Without approval of the Dean or Associate Dean, a special student cannot enroll for more than six semester hours in a given semester or for more than a total of 12 semester hours. Applicants seeking special-student status must meet the same requirements as regular students, including necessary immunizations.

Certificate Student: The applicant may be admitted to a certificate Program by meeting the admission requirements of that particular Program. A certificate-Program student who subsequently desires to pursue a degree must make a formal application for admission. Such admission is not assured.

Non-UT Southwestern Student: UT Southwestern's capacity to accommodate students from other institutions who wish to take courses or undertake an elective rotation is extremely limited.

UT Southwestern cannot reserve classroom or clinical positions in advance for any students other than those enrolled in UT Southwestern's degree or certificate Programs. The burden placed on UT Southwestern's faculty to provide adequate supervision to UT Southwestern students and the demands placed upon the limited number of supervised clinical-placement sites leave scant room for students from other institutions.

In the unlikely event that UT Southwestern has excess capacity on its clinical teaching services for well-trained elective students from other accredited schools, UT Southwestern will consider applications from those students on a Department-by-Department "exception" basis.

All such exceptions are subject to review and approval by the Dean or Dean's designee, and the student must apply for "special student" admission to UT Southwestern School of Health Professions.

Essential Functions

All individuals, including people with disabilities, who apply for admission to UT Southwestern School of Health Professions must be able to perform specific essential functions, with or without accommodations. Essential functions are the basic activities that a student must be able to perform to complete the Program's curriculum. No applicant who can perform the School's essential functions – either with or without reasonable accommodations – will be denied consideration for admission. Information regarding how to request reasonable accommodation due to disability and UT Southwestern's Learners with Disabilities Policy is available from the Dean's Office or Student Academic Support Services. This information is also included in the material sent to all accepted applicants.

Each School of Health Professions student must be able to perform the following essential functions, with or without accommodation, in addition to any essential functions specific to the particular program of study, which are listed in the Program sections.

1) Attend scheduled classes and laboratory sessions and be present for examination and testing;

2) Travel to practicum sites and have mobility within and around the sites;

3) Assimilate information presented via lecture, handouts, videos, discussions, computer and/or other educational modalities;

4) Complete assignments such as written assignments, oral presentations, class participation, examinations and computer-based activities;

5) Apply the assimilated information to appropriate clinical situations;

6) Communicate effectively with patients/clients, their families, faculty and other professionals using oral, telephonic, written and computer modalities in private and group settings; and

7) Make effective use of learning resources at UT Southwestern and affiliated facilities.

Entrance requirements

For prospective students, the "General Information" site of the catalog contains additional onboarding information, including:

Background Check
Policy Against Discrimination
Residency Defined
Active Military Service
Academic Fresh Start
Required Immunizations
AIDS, HIV and Hepatitis B Virus Policy
Bacterial Meningitis

Distance Learning

UT Southwestern Medical Center offers distance learning courses to on-campus and off-campus students enrolled for academic credit in the health professions or for continuing education.

Graduate courses are under development by UT Southwestern School of Health Professions faculty members. As courses are created, they will proceed through the usual phases of academic course review and approval. UT Southwestern does not offer, nor does it plan to offer at this time, full degree programs via distance education.

TUITION, FEES

Information concerning the current cost of an education at UT Southwestern can be viewed at:

http://www.utsouthwestern.edu/education/school-of-health-professions/cost-financial-support/index.html

Students in doubt about their residency status for tuition purposes should consult the Residency Defined section in the "General Information" portion of the catalog.

The "General Information" site also describes the various fees and insurances needed by students at UT Southwestern. Contained within Student Information, these references include:

Designated Tuition
Tuition Installment Payments
Computer Usage and Technology Fees
Graduation Fee
Health Insurance
Disability Insurance

Incidental Fees
Laboratory Fee
Late Registration Fee
Malpractice Insurance Fee
Medical Services Fee
Returned Check Fee
Student Services Fee
Books and Equipment
Parking
Student Housing

Financial Aid

The "General Information" section of the catalog addresses the process of applying for and receiving financial aid. Information also can be viewed at:

http://www.utsouthwestern.edu/about-us/administrative-offices/financial-aid/index.html

PROGRAMS

(Individual sections that follow may include Chair and faculty, description, objectives, admission requirements, specific essential functions, curriculum, and common course descriptions)

Clinical Nutrition

Degree Offered
Master of Clinical Nutrition

Chair
Jeffrey Browning, M.D., UT Southwestern, 1998

FACULTY

Professors

Jo Ann S. Carson, Ph.D., UT Austin, 2000
Gloria Lena Vega, Ph.D., Louisiana State University Medical Center, 1979

Assistant Professors

Lona Sandon, Ph.D., Texas Woman's University, 2016
Hoda Yeganehjoo, Ph.D., Texas Woman's University
Susan G. Rodder, M.S., Texas Woman's University, 1991

Clinical Instructors

Michaela Carrington, M.S., University of Alabama, Birmingham, 1985
Kathleen Eustace, M.P.H., University of Texas, Houston, 2010

Faculty Associates

Tad Campbell, M.C.N., UT Southwestern School of Health Professions, 2012
Alicia Gilmore, M.S., Oklahoma State University, 2002

DESCRIPTION

The Master of Clinical Nutrition offers the opportunity to develop an advanced level of knowledge and skill so clinicians can address the complex nutritional issues of healthy and ill individuals at various stages of their life span. Two tracks are available.

The first track, the Master of Clinical Nutrition Coordinated Program, provides didactic course work and supervised practice to meet the knowledge and competency requirements of the Academy of Nutrition and Dietetics Accreditation Council for Education in Nutrition and Dietetics. Graduates of this Program are eligible to take the Registration Exam for Dietitians and to apply for licensure in Texas. They also are eligible for active membership in the Academy of Nutrition and Dietetics.

The second track, the Master of Clinical Nutrition for Health Professionals, is available to individuals who are already registered dietitian nutritionists or other licensed health care professionals. Having previously met the academic and clinical requirements to become a licensed clinician, these students do not complete supervised practice, but they do complete academic course work to provide high-level nutritional care with greater emphasis and time devoted to completion of a research project.

MASTER OF CLINICAL NUTRITION COORDINATED PROGRAM

The Master of Clinical Nutrition Coordinated Program prepares students to address the nutrition and health needs of society as registered dietitian nutritionists. Registered dietitian nutritionists individualize nutrition therapy to optimize management of such diseases as diabetes, hypertension, renal failure, obesity, and cancer. The Program uses the unique resources of the Medical Center to prepare graduates to become registered dietitian nutritionists capable of meeting the demands of the changing health care system. Having developed a strong knowledge base in clinical nutrition, graduates use food and nutrition information effectively in prevention and treatment of disease. Individualized experiences facilitate students' pursuit of their own career goals; whether in health care, in research, or as a nutrition authority for the public.

OBJECTIVES

The goal of the Coordinated Program is to graduate team-oriented clinicians ready to function in acute, chronic, and community settings with evidence-based nutrition therapy. With a concentration in nutrition therapy, the Program builds on a science foundation to develop the skills to:

1. Assess the nutrition needs of individuals, based on lifestyle and health status;
2. Provide medical nutrition therapy for patients of all ages across a spectrum of settings from intensive care to home care;
3. Integrate interpretation of biochemical parameters and medications in the nutrition-care process;
4. Adapt nutrition counseling strategies to overcome barriers to lifestyle change;
5. Function within interdisciplinary teams to provide nutrition support for patients with complex medical problems;
6. Provide culturally competent nutrition education to populations with diverse nutrition needs;
7. Incorporate knowledge of functional foods, phytochemicals, and food processing, as well as knowledge of nutrient gene interactions, to serve as a food and nutrition authority for the public through mass media and other nutrition information venues;
8. Interpret evidence-based research and formulate research hypotheses to advance evidence-based dietetics practice; and
9. Manage human, material, and financial resources in food and nutrition-related businesses.

Graduates of the Program may assume positions in hospitals, clinics, long-term care facilities, and home health care agencies. They may focus on clinical areas such as pediatrics,

diabetes, cardiac rehabilitation, or cancer. Others may pursue opportunities in fitness and wellness programs, schools or universities, community health programs, and industry.

ACCREDITATION

The Coordinated Program is granted accreditation with an emphasis in nutrition therapy by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics (www.eatright.org/CADE), 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606, 312-899-0040.

REQUIREMENTS FOR ADMISSION

The Admissions Committee of the Department of Clinical Nutrition determines the admissibility of an applicant into the Program in accordance with the quality of his or her credentials. The Department works in cooperation with the Office of Enrollment Services of UT Southwestern Medical Center and with the approval of the Dean of UT Southwestern School of Health Professions. Admission requirements are:

1. Baccalaureate degree from a regionally accredited institution prior to matriculation;
2. Completion of all admission course requirements as outlined in the following chart;
3. Graduate Record Examination;
4. A recommended minimum of a 3.0 prerequisite and a 3.0 overall grade-point average;
5. Ability to perform essential functions as described in this chapter;
6. Completion of online application and submission of $50 fee;
7. Official transcripts from all schools attended;
8. Three letters of recommendation;
9. Personal interview;
10. Personal statement of career goals; and
11. Description of work experience.

Because admission into the Clinical Nutrition Program is competitive and made on a space-available basis, special consideration in the selection process are given to:

1. Overall grade-point average;
2. Science and prerequisite grade-point average;
3. The three letters of recommendation;
4. Personal interview;
5. Personal statement of career goals; and
6. Work experience.

INTERNATIONAL APPLICANTS

Foreign transcripts must be evaluated by a transcript evaluation agency; TOEFL or IELTS is required.

ESSENTIAL FUNCTIONS

In addition to essential functions for all students (see Entrance Requirements in the Student Information chapter), each student in the Clinical Nutrition Program must be able to:

1. Participate in supervised practice activities for eight-hour days;
2. Demonstrate sufficient problem-solving skills to assess multifactorial aspects of nutrition care and organize and prioritize necessary tasks within time constraints;
3. Demonstrate sufficient vision, smell, and taste to evaluate the appearance, aroma, and flavor of food;
4. Demonstrate sufficient upper-body strength and manual dexterity to operate and clean household and institutional equipment required for food preparation and food service; and
5. Demonstrate sufficient vision to observe compliance with food sanitation and safety codes.

CURRICULUM

The Master of Clinical Nutrition Coordinated Program is a full-time graduate program encompassing two years with six semesters. The curriculum includes both academic course work and supervised practice. Supervised practice and classroom courses are offered during the typical workday; some course work is available online.

Students have supervised practice in prominent Dallas health care facilities under the direction of both staff dietitians and faculty members who are registered dietitian nutritionists. Current trends in health care are considered as students train in ambulatory and long-term care facilities, home-health agencies, work site wellness programs, schools and community settings, and acute-care hospitals.

Program of Instruction

First Year

Fall		**Hours**
CN 5105	Nutrition and Metabolism Current Issues	1
CN 5310	Nutrition Care Process	3

CN 5422	Nutrition in Health Promotion	4
CN 5331	Food Science and Technology	3
CN 5340	Nutrition in Metabolism	3
CN 5250	Nutrition Care Process Practicum	2
HCS 5106	Professional Development	*
Total		**16**

Spring		**Hours**
CN 5311	Medical Nutrition Therapy in Chronic Care	3
CN 5332	Food Service Management	3
CN 5341	Nutrition in Growth and Development	3
CN 5002	Special Topics	1
HCS 5330	Health Care Research	3
CN 5351	Chronic Care Medical Nutrition Therapy Practicum	3
HCS 5106	Professional Development	1
Total		**17**

*Year-long course, completed in Spring

Summer		**Hours**
CN 5312	Medical Nutrition Therapy in Acute Care	3
CN 5242	Nutrition in Aging	2
CN 5452	Acute Care Medical Nutrition Therapy Practicum	4
Total		**9**

Second Year

Fall		**Hours**
CN 5313	Medical Nutrition Therapy in Pediatrics	3
CN 5353	Advanced Medical Nutrition Therapy Practicum	3
CN 5360	Education and Community Nutrition Practicum	3
CN 5370	Food Service Practicum	3
Total		**12**

Spring		**Hours**
CN 5223	Nutrition in Media Communications	2
CN 5233	Business of Health Care	2
CN 5954	Integrated Nutrition Practicum	9
Total		**13**

Summer		**Hours**
CN 5390	Nutrition Research	3
CN 5002	Special Topics	1
Total		**4**
Program total		**71**

SPECIAL REQUIREMENTS

For a student to enroll in any required course in the curriculum, all prerequisite courses must be completed with a grade of C or better. Failure to meet the specifications of a student's degree plan may prohibit that student from enrolling in the subsequent semester or from graduating from the Program.

GRADUATION REQUIREMENTS

A candidate for the degree of Master of Clinical Nutrition at UT Southwestern School of Health Professions must meet all of the following requirements:

1. The student must demonstrate a high order of scholarly achievement in clinical nutrition, including appropriate research and professional competencies. The program's Student Progress Committee determines whether adequate mastery has been acquired.
2. The student must complete satisfactorily the minimum semester hours at UT Southwestern School of Health Professions. For the Master of Clinical Nutrition Coordinated Program, the minimum is 71 semester hours. For the Master of Clinical Nutrition for Health Professionals, the minimum is 36 semester hours.
3. The student must discharge all financial obligations to the Medical Center. In the event of nonpayment, one or more actions may be taken by the Dean: a) readmission may be denied; b) a student's grades and official transcript may be withheld; and c) the degree to which the student would otherwise be entitled may be withheld.
4. The student must maintain at least a 2.75 cumulative grade point average, have no academic deficiencies, and have no incompletes.
5. The student must complete the academic requirements listed on his or her degree plan, including completion of any academic deficiencies in prerequisite courses, by the time stated in the student's official letter of acceptance. The student is responsible for submitting official documentation of successful completion of the prerequisites to the Office of Enrollment Services.

6. The student must complete all required courses in the degree plan with a grade of C or higher (P for Pass/Fail courses) while maintaining at least a 2.75 cumulative grade point average. Students in the Coordinated Program must receive practical evaluations reflecting an acceptable level of performance and professional conduct and complete all required supervised practice.
7. The student must successfully participate in a graduate research project.

MASTER OF CLINICAL NUTRITION FOR HEALTH PROFESSIONALS

The Master of Clinical Nutrition for Health Professionals is designed to advance the skills and knowledge in nutrition of registered dietitian nutritionists and other licensed health professionals. Available to part-time students, this graduate degree program builds on current professional skills and exposes students to the latest clinical nutrition research. The degree is designed to prepare graduates for the growing challenges of caring for the health care needs of people in America.

OBJECTIVES

This graduate degree Program offers the opportunity to strengthen and extend professional health care skills to enhance opportunities for job flexibility and upward mobility. It includes opportunities to develop or refine the health care professional's ability to:

1. Use the nutrition diagnoses and other components of the nutrition care process in patient care and documentation;
2. Provide nutrition care in multiple health care settings, from pediatrics to geriatrics;
3. Collaborate within interdisciplinary teams to provide nutrition support for patients with complex medical problems;
4. Provide culturally competent nutrition education to populations with diverse nutritional needs;
5. Serve as an authority on food and nutrition information for the public through mass media and other nutrition information venues; and
6. Conduct evidence-based research to support the practice of clinical nutrition.

Classes and research opportunities reflect the rich research and clinical care environment of UT Southwestern Medical Center. Students are exposed to current nutrition research. They interact with practicing health care professionals and researchers as they learn about evidence-based care and cost-effective treatment options. Classroom and research experiences facilitate

students' pursuit of individual career goals in health care, research, or nutrition communications.

REQUIREMENTS FOR ADMISSION

Admission requirements for the Master of Clinical Nutrition for Health Professionals are the same as those listed for the Master of Clinical Nutrition Coordinated Program (see earlier section) plus evidence of being a registered dietitian or a licensed health professional in a profession recognized by the Texas Department of State Health Services.

CURRICULUM

Students in the program complete 36 semester hours. They may enroll as part-time or full-time students to complete the degree within a minimum of 15 months and a maximum of six years. Some classroom courses are offered during the typical work day; others are available online or scheduled in the early evening.

Program of Instruction

Required courses		**Hours**
CN 5310	Nutrition Care Process	3
CN 5311	Medical Nutrition Therapy in Chronic Care	3
CN 5312	Medical Nutrition Therapy in Acute Care	3
CN 5340	Nutrition in Metabolism	3
CN 5390	Nutrition Research	3
HCS 5330	Health Care Research	3
Total		**18**

In addition, students must take six semester hours of Clinical Nutrition electives and 12 semester hours of general electives, for a total of 36 semester hours. General electives may be selected from CN courses and courses offered by other Departments and Schools within UT Southwestern.

Sample Curriculum Sequence

First Year		
Fall		**Hours**
CN 5310	Nutrition Care Process	3

CN 5340	Nutrition in Metabolism	3
CN 5002	Special Topics	1
Total		**7**

Spring		**Hours**
CN 5311	Medical Nutrition Therapy in Chronic Care	3
HCS 5330	Health Care Research	3
CN 5002	Special Topics	1
Total		**7**

Summer		**Hours**
CN 5312	Medical Nutrition Therapy in Acute Care	3
CN 5002	Special Topics	1
Total		**4**

Second Year

Fall		**Hours**
CN 5390	Nutrition Research	3
	Clinical Nutrition Elective	3
	General Elective	3
Total		**9**

Spring		**Hours**
CN 5390	Nutrition Research	3
	General Electives	6
Total		**9**

Summer		**Hours**
	General Elective	3
Total		**3**

SPECIAL REQUIREMENTS

See requirements listed under Master of Clinical Nutrition Coordinated Program.

GRADUATION REQUIREMENTS

The Master of Clinical Nutrition for Health Professionals requires satisfactory completion of 36 semester credit hours and other criteria listed under graduation requirements for the Master of Clinical Nutrition Coordinated Program.

COURSE DESCRIPTIONS

CN 5002 Special Topics
1-3 semester hours
This course is designed to provide the most recent scientific information on issues of current concern, such as weight management, women's health, critical care, or metabolism.

CN 5101 Applied Sports Nutrition
1 semester hour
This course covers the basic topics of sports nutrition within the scope of the registered dietitian nutritionist. Topics include fluids and electrolytes, carbohydrates, protein, weight management, vitamins and minerals, dietary supplements and ergogenic aids, and special population concerns such as vegetarianism and diabetes as applied to athletes and active individuals.

CN 5102 Advanced Sports Nutrition
1 semester hour
This course delves into current research topics in sports nutrition. Students have the opportunity to investigate sport specific nutrient requirements, evaluate sports nutrition supplements, and analyze current research related to macro or micronutrient intake and sports performance or recovery.
Prerequisite: CN 5101 or permission of instructor

CN 5103 Nutrition in Cancer Prevention
1 semester hour
This course will review current research related to nutrition and physical activity in cancer prevention with attention to the role of energy balance.

CN 5104 Nutrition Support: Current Issues
1 semester hour
This course will examine current evidence and practice guidelines for selected topics in the provision of enteral and parenteral nutrition.
Prerequisite: CN 5312 or permission of instructor

CN 5105 Nutrition and Metabolism Current Issues
1 semester hour
As current research studies in nutrition and metabolism are explored, students develop skills in reading research critically and writing scientific reports. Concurrent enrollment with CN 5340

CN 5422 Nutrition in Health Promotion
4 semester hours
This course will explore theories that explain health- and nutrition-related behaviors coupled with strategies for promoting behavior change among varying age groups. Students will also build skills in interpreting health and nutrition data for assessing, planning, implementing, and evaluating health and nutrition interventions at the community level. Public health nutrition surveillence systems and food programs will be emphasized.

CN 5223 Nutrition in Media Communications
2 semester hours
Students develop skills in translating scientific nutrition statements into meaningful messages for the mass media and the lay consumer. They produce written educational materials that promote health, wellness, and positive lifestyle choices.

CN 5233 Business of Health Care
2 semester hours
This course applies principles of management and business theory to the delivery of health care. Content covered includes cost-benefit analysis, billing and reimbursement for health care services, analysis of financial data, fiscal accountability, and development of business plans and budgets.

CN 5242 Nutrition in Aging
2 semester hours
This course presents overall biologic, social, and behavioral aspects of aging, in addition to prevention and treatment of age-related chronic diseases and conditions. Nutritional needs in aging, altered by physiology, lifestyle, and sociocultural factors, are studied. The continuum of health services emerging to meet the needs of aging adults are reviewed, along with the integration of nutrition services in promoting optimal interdisciplinary health outcomes.

CN 5250 Nutrition Care Process Practicum
2 semester hours

In this introductory practicum course, students gather data from electronic health records. Students perform the nutrition care process on clients, including conducting nutrition physical examinations and developing nutrition diagnoses.

CN 5310 Nutrition Care Process
3 semester hours
This course introduces the role of registered dietitian in the nutrition care process and evidence-based practice. The Scope of Practice and Code of Ethics are covered. Assessment of nutritional status, differentiation of nutrition diagnoses, and creation of problem, etiology, signs, and symptoms statements are included. Students may develop skills in basing interventions and evaluation on the nutrition diagnoses. The use of standardized nutrition language and the medical record are included.

CN 5311 Medical Nutrition Therapy in Chronic Care
3 semester hours
The role of food, nutrition, and lifestyle choices in health promotion and disease prevention is discussed. The focus is on obesity, cardiovascular disease, diabetes, and some gastrointestinal disorders. Related pathophysiology and pharmacology are covered.
Prerequisite: CN 5310 or consent of instructor

CN 5312 Medical Nutrition Therapy in Acute Care
3 semester hours
Students apply the nutrition care process in providing evidence-based medical nutrition therapy for patients with significant needs for nutrition support, including those with diseases of the gastrointestinal and renal systems, HIV, cancer, or trauma. Related pathophysiology and pharmacology are covered.
Prerequisite: CN 5311 or consent of instructor

CN 5313 Medical Nutrition Therapy in Pediatrics
3 semester hours
This course applies principles of medical nutrition therapy to the care of infants, children, and adolescents. Students use growth charts to assess and interpret growth status of pediatric patients. Selection and use of specialized infant formulas to promote appropriate growth in children with a variety of chronic and acute conditions, including genetic disorders, are covered.
Prerequisites: CN 5312 and CN 5341, or consent of instructor

CN 5331 Food Science and Technology
3 semester hours

Principles of food science are applied to the development of food products that appeal to consumers based on appearance, texture, flavor, and nutritional content. The roles of various ingredients in processed foods and functional foods are covered. Other topics include food irradiation, genetically modified foods, organic foods, food safety, and sustainable agriculture. (2 credits lecture; 1 credit lab)

CN 5332 Food Service Management

3 semester hours

This course covers management of resources in the procurement, production, distribution, and service in food-service systems. Development of menus for a variety of group settings is presented with attention to culture, nutritional needs, culinary skills, and resource allocation. Policies and procedures, marketing, and government regulations are included.

CN 5340 Nutrition in Metabolism

3 semester hours

Nutritional science concepts are presented within the context of human metabolism. In providing the scientific foundation for nutrition therapy, this course covers nutrient functions, bioavailability, clinical signs of inadequate and excessive intake, and biochemical methods of evaluating status. Achieving nutritional requirements from food and/or supplements is addressed, with attention to emerging issues related to nutrigenomics.

CN 5341 Nutrition in Growth and Development

3 semester hours

Normal nutrition needs during growth and development from preconception through adolescence are covered. Sociological and environmental aspects that influence the outcome of pregnancy are explored. Students have the opportunity to become acquainted with the benefits of breast-feeding and to learn how to promote breast-feeding by recognizing reliable resources for new mothers. Appropriate progression of feeding from infancy throughout childhood is addressed, with an introduction to use of growth charts for assessing growth of infants and children.

CN 5351 Chronic Care Medical Nutrition Therapy Practicum

3 semester hours

Students provide evidence-based nutrition therapy for clients in wellness and clinic settings. Nutrition for prevention and treatment of obesity, cardiovascular disease, diabetes, and some gastrointestinal disorders is addressed.

Prerequisite: CN 5250

CN 5353 Advanced Medical Nutrition Therapy Practicum
3 semester hours
The student provides medical nutrition therapy to specific populations, including pediatric clients.
Prerequisite: CN 5452

CN 5360 Education and Community Nutrition Practicum
3 semester hours
The student is afforded the opportunity to practice nutrition education and counseling in community settings, such as community clinics and public health programs.
Prerequisite: CN 5250, CN5422

CN 5370 Food Service Practicum
3 semester hours
Within a food service operation, the student coordinates procurement, production, distribution, and service of food. Attention is given to the organizational structure of the food service unit, quality management, employee training, and safety programs.
Prerequisite: CN 5332

CN 5390 Nutrition Research
3 semester hours
This course meets the research requirement for the Master of Clinical Nutrition. In this course, students complete one of three types of research projects: 1) a clinical study, usually in conjunction with a larger, ongoing research study; 2) an evidence-based review of literature that results in recommendations for clinical practice; or 3) a clinical outcomes study. The research may be completed individually or by a small group of students.
Prerequisite: HCS 5330

CN 5452 Acute Care Medical Nutrition Therapy Practicum
4 semester hours
The student provides evidence-based medical nutrition therapy to clients with renal disease, cancer, traumatic injuries, and other complex medical problems.
Prerequisite: CN 5351; concurrent enrollment in CN 5312

CN 5954 Integrated Nutrition Practicum
9 semester hours
Students integrate knowledge and skill in medical nutrition therapy and management in applying the nutrition-care process to care of clients with complex medical and social histories.

Students apply management skills in team communication, reimbursement procedures, and quality improvement. The practicum includes a block in which students function independently in patient care and one in which they gain insights into applied research in clinical nutrition. Prerequisites: CN 5313, CN 5351, CN 5360, CN 5370

Clinical Rehabilitation Counseling

Degree offered

Master of Clinical Rehabilitation Counseling

Interim Program Director, Robert Drake

FACULTY

Professor

C. Munro Cullum, Ph.D., UT Austin, 1986

Associate Professors

Karen Brewer-Mixon, Ph.D., UT Southwestern Medical Center, 1994

Gerald Casenave, Ph.D., UT Southwestern Medical Center, 1990

Assistant Professors

Robert Drake, M.S., UT Southwestern Medical Center, 2001

Special Faculty

Ted Asay, Clinical Assistant Professor
Ph.D., Brigham Young University, 1984

Katie Croft-Caderao, Clinical Instructor
Ph.D., Southern Methodist University, 2014

Carlos W. Davis, Clinical Instructor
Ph.D., University of Georgia, 1978

Michael Gottlieb, Clinical Instructor
Ph.D., Texas Tech University, 1972

Jennifer Guerrero, Clinical Instructor
Ph.D., Sam Houston State University, 2013

Grant Holland, Clinical Instructor
Ph.D., Southern Methodist University, 2014

Rupa Naidu, Clinical Instructor
Ph.D., UT Southwestern Medical Center, 1997

Kimberly Roaten, Associate Professor
Ph.D., UT Southwestern Medical Center, 2008

Shannon Juengst, Assistant Professor
Ph.D., University of Pittsburg, 2012

MASTER IN CLINICAL REHABILITATION COUNSELING

MISSION

The mission of the Master's Program in Clinical Rehabilitation Counseling is to provide its students with the highest quality of training in the relevant concepts and skills needed in vocational and adjustment counseling for people with disabilities and chronic illness, and to provide Program graduates with the academic and clinical experiences necessary for national certification as a Certified Rehabilitation Counselor (CRC) and state licensure as a Licensed Professional Counselor (LPC) and/or Licensed Psychological Associate (LPA).

OBJECTIVES

In order to fulfill the mission of the Master's Program in Clinical Rehabilitation Counseling, the Program seeks to meet the following objectives:

- To offer academic content and clinical practicum and internship experiences that will meet or exceed standards necessary for obtaining relevant accreditation, certification, and licensure.
- To ensure that all Program graduates have demonstrated mastery of core academic content.
- To ensure that all Program graduates have demonstrated essential skills in clinical rehabilitation counseling, psychological assessment, and vocational planning.
- To ensure that Program graduates have demonstrated knowledge of the professional identities expected of a Certified Rehabilitation Counselor, Licensed Professional Counselor, and Licensed Psychological Associate.

ACCREDITATION

The Clinical Rehabilitation Counseling Program is accredited as a Rehabilitation Counseling Entry-Level Specialty Area by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). A special effort has been made to offer course work in areas of study relative to certification as a rehabilitation counselor in addition to licensure as a psychological associate and/or a licensed professional counselor in the state of Texas.

REQUIREMENTS FOR ADMISSION

There are three minimum requirements that must be met to be considered for admission to this Program:

1. A baccalaureate degree from an accredited U.S. institution or proof of equivalent training at a foreign university;
2. Satisfactory grades (recommended minimum overall GPA of 3.0) in undergraduate and graduate course work.
3. A recommended minimum combined score of 300 on the Graduate Record Examination General Test.

Applicants must request that the GRE scores be sent directly to the Office of Enrollment Services. The code number for UT Southwestern Medical Center is 6686.

Applicants must have taken the GRE within five years preceding the expected date of enrollment. GRE scores older than five years will not be accepted unless the applicant has recently been engaged in graduate study at this or another university.

Applicants should have an undergraduate major in the behavioral sciences, such as psychology, sociology, or gerontology; individual exceptions for applicants with non-behavioral sciences degrees will be judged by the Department. The applicant is required to demonstrate proficiency in basic statistics prior to admission.

The Admissions Committee uses a number of criteria in evaluating applicants:

1. High-order intellectual abilities, with particular emphasis on those skills necessary for counseling and psychological practice;
2. Good academic background in psychology, counseling, and rehabilitation-related courses;
3. Personal suitability for a career in rehabilitation counseling as evidenced by ability to relate to others, warmth, empathy, and a sincere interest in psychological processes;
4. Motivations, expectations, and career aspirations congruent with the nature of this Program;
5. Successful experience in rehabilitation, counseling, and/or psychology-related activities.

In addition, in order to maximize inclusiveness, the Committee will consider applicants whose backgrounds reflect socioeconomic hardship, successful prior careers in another field, and significant research or work experience.

Applicants are evaluated on a competitive basis. Efforts are made to assemble a group of students with the goal of producing professionals equipped to serve our changing communities effectively. All admissions are subject to approval of the Graduate Studies Committee.

The deadline for submitting completed applications is June 15; however, it is to the advantage of the applicant to apply earlier as classes may fill. Applications are accepted as early as the preceding November 1. Students are admitted to the Program only in the fall term.

ESSENTIAL FUNCTIONS

In addition to essential functions for all students (see Entrance Requirements in the "Student Information" page), each student in the Master of Clinical Rehabilitation Counseling Program must be able to:

1. Measure, calculate, reason, analyze, synthesize, integrate, and apply oral and written information in the process of evaluation and problem-solving

2. Demonstrate the emotional health required to fully use his/her intellectual abilities such as exercising good judgment, promptly completing all responsibilities required by the Program, or attendant to the diagnosis and care of clients
3. Develop mature, sensitive, and effective relationships
4. Tolerate demanding workloads and to function effectively under stress
5. Adapt to changing environment, to display flexibility, and to learn to function in the face of uncertainties and ambiguities inherent in the clinical problems of many clients
6. Demonstrate professional demeanor and behavior, and perform activities in an ethical manner in all dealings with peers, faculty, staff, and clients

CURRICULUM

The Master of Clinical Rehabilitation Counseling Program is a full-time, two-year post-baccalaureate program that begins in August. The 60-hour curriculum focuses on knowledge and skills of counseling and rehabilitation for persons with physical and/or psychiatric disabilities. The program also provides students with significant clinical experience in working with people with various disabilities through practicum and internship. To maximize faculty and student interaction, all academic training takes place in a traditional classroom setting, Monday through Friday during business hours. Clinical experiences also take place during regular business hours. The order of courses is subject to change.

First Year

FALL

COURSE		**HOURS**
MRC 5410	Fundamentals of Assessment	4
MRC 5311	The Profession of Rehabilitation Counseling: Issues and Practices	3
MRC 5312	Psychopathology	3
MRC 5336	Counseling Theories in Rehabilitation	3
HCS 5106	Professional Development	*
Total		**13**

SPRING

MRC 5301	Human Development	3
MRC 5332	Occupational Information, Vocational Analysis, and Placement	3
MRC 5335	Counseling Techniques in Rehabilitation	3
MRC 5303	Medical and Psychosocial Aspects of Disability	3

MRC 5339	Abnormal Human Behavior	3
HCS 5106	Professional Development	1
Total		**16**

*Year-long course, completed in Spring

SUMMER

MRC 5204	Advanced Counselor Ethics	2
MRC 5337	Research Methods and Techniques in Rehabilitation	3
MRC 5338	Theories and Methods of Cognitive Behavioral Therapy	3
MRC 5188	Pre-Clinical Seminar in Rehabilitation Counseling	1
MRC 5202	Counseling Family Systems	2
Total		**11**

Second Year

FALL

COURSE		**HOURS**
MRC 5340	Introduction to Group Counseling Techniques	3
MRC 5189	Practicum in Rehabilitation Counseling	3
MRC 5096	Special Topics	1
Total		**7**

SPRING

MRC 5343	Social and Cultural Issues in Rehabilitation Counseling	3
MRC 5234	Addictions Counseling	2
MRC 5090	Internship in Rehabilitation Counseling	4
Total		**9**

SUMMER

MRC 5090	Internship in Rehabilitation Counseling	4
Total		**4**

GRADUATION REQUIREMENTS

To graduate from the Master of Clinical Rehabilitation Counseling Program, a candidate must:

1. Demonstrate a high order of scholarly achievement in rehabilitation counseling, including appropriate professional competencies.

2. Complete the academic requirements listed in the degree plan, including completion of any conditions imposed by the Graduate Studies Committee.
3. Complete satisfactorily a field examination, independent of course grades and internship evaluations, in the required time frame.
4. Meet minimum professional competencies as determined by the Graduate Studies Committee.
5. Pay a graduation fee designated to partially offset the costs associated with the diploma and diploma cover production, regalia, and the commencement ceremony. (All students completing a degree or certificate must pay the fee whether they attend the commencement ceremony or not).
6. Discharge all financial obligations to the Medical Center.

COURSE DESCRIPTIONS

MRC 5202 Counseling Family Systems
2 semester hours
This course provides a survey of important theories and models relating to interventions with families. Emphasis is placed on the family system and on the reciprocal interactions within the system that can affect the rehabilitation process.
Prerequisite: Consent of instructor

MRC 5303 Medical and Psychological Aspects of Disability
3 semester hours
This course is an introduction to the medical aspects of disability, which includes a survey of physical, psychiatric, cognitive, sensory, and developmental disabilities. The course examines the human body system, medical terminology and diagnosis, assistive technology, classification and evaluation of function as well as psychological dynamics related to self-identity, growth, and adjustment.
Prerequisite: Consent of instructor

MRC 5204 Advanced Counselor Ethics
2 semester hours
This course reviews the ethical codes for rehabilitation counselors, licensed professional counselors, and licensed psychological associates and applies the ethical concepts in these codes to clinical case examples.
Prerequisite: Consent of instructor

MRC 5301 Human Development
3 semester hours
This course provides the foundation for understanding normal child, adolescent, and adult development. Emphasis is placed on determinants of cognitive and personality factors that can impact the rehabilitation process.
Prerequisite: Consent of instructor

MRC 5410 Fundamentals of Assessment
4 semester hours
This course explores basic concepts of assessment and use of assessment in diagnostic and intervention planning services in rehabilitation counseling. Students will become familiar with various assessment instruments and ethical and culturally relevant strategies for selecting, administering, and interpreting test results. Students will be trained in basic concepts of standardized and non-standardized testing, norm- and criterion-referenced assessments, and group and individual assessments. The course consists of one three-hour didactic session per week with a one-hour laboratory in which students learn to administer the assessment instruments described in didactics. Students will practice their interpretation skills toward the goal of becoming competent consumers of evaluation reports.

MRC 5311 The Profession of Rehabilitation Counseling: Issues and Practices
3 semester hours
This course offers students an orientation to the field of rehabilitation counseling, including a survey of history, philosophy, counseling, and economics of the system. Students study the process of rehabilitation, the goals and objectives of the professional organizations, the code of ethics, the standards of preparation, and certification. Techniques of using community resources for rehabilitation service delivery such as counseling, evaluation, work adjustment, and job placement are surveyed.
Prerequisite: Consent of instructor

MRC 5312 Psychopathology
3 semester hours
This course outlines the etiological, emotional, and behavioral characteristics in syndromes of psychopathology. This course includes instruction about DSM-5 diagnostic criteria, disease-related epidemiological information, treatment considerations, and prognosis for independent functioning.
Prerequisite: Consent of instructor

MRC 5332 Occupational Information, Vocational Analysis, and Placement

3 semester hours
Information presented in this course covers areas of vocational history and the structure of society; career and/or occupational choice processes and career development, or decision and exploration techniques; skills and physical- or emotional-demands analysis; job analysis, job modification, and placement; resources of occupational and/or educational information; and practice in communicating the world of work in group and individual counseling. Skill training and field experience in job placement techniques are emphasized.
Prerequisite: Consent of instructor

MRC 5233 Addictions Counseling
2 semester hours
This course provides a comprehensive overview of different types of addictions individuals may experience. These include, but are not limited to substances such as alcohol and drugs, gambling, and sex addiction. Students will learn about identifying addictions as well as evidence-based treatment for addictions.
Prerequisite: Consent of instructor

MRC 5335 Counseling Techniques in Rehabilitation
3 semester hours
This course introduces applied techniques from various theoretical approaches to explore, understand, and develop courses of action for individuals dealing with rehabilitation issues. In-class demonstration, practice, and analysis of skills are utilized as part of the learning process.
Prerequisites: MRC 5336 or consent of instructor and the Graduate Studies Committee

MRC 5336 Counseling Theories in Rehabilitation
3 semester hours
This course studies historical and current approaches to individual counseling with application to the field of rehabilitation. Students have the opportunity to develop basic counseling skills used in exploring, understanding, and taking action on client problems.
Prerequisite: consent of instructor

MRC 5337 Research Methods and Techniques in Rehabilitation
3 semester hours
This course reviews research methodologies, including statistical analyses and designs that are necessary for a professional counselor's access to the more technical behavioral, rehabilitation, and social science literature. The epidemiological aspects of evidence-based practice also is presented.
Prerequisite: Consent of instructor

MRC 5338 Theories and Methods of Cognitive Behavioral Therapy
3 semester hours
This course includes a review of theories and methods of cognitive behavioral therapy and their applications to clinical problems.
Prerequisites: MRC 5336 or consent of instructor and the Graduate Studies Committee

MRC 5339 Abnormal Human Behavior
3 semester hours
This course builds on MCRC 5312, providing students with a fuller understanding of concepts of psychopathology. It focuses on understanding what the range of normal human behavior is, the ways in which behavior becomes disturbed, and how different personality/psychotherapy theories explain the ways in which disturbed behavior is effectively treated.
Prerequisites: MRC 5312 or consent of instructor and the Graduate Studies Committee

MRC 5340 Introduction to Group Counseling Techniques
3 semester hours
This course introduces principles of group process and techniques of group counseling. The course offers students an opportunity to develop skills in group leadership, problem resolution, and vocational exploration.
Prerequisite: MRC 5336 or consent of instructor

MRC 5343 Social and Cultural Issues in Rehabilitation Counseling
3 semester hours
Studies of change, ethnic groups, subcultures, gender issues, and changing roles of women in American society are discussed. Emphasis is placed on concepts of social change, adaptation, and future trends in the American social structure. The impact of cultural issues on rehabilitation counseling practice also is emphasized.
Prerequisite: Consent of instructor

MRC 5352 Directed Readings in Rehabilitation
3 semester hours
This course offers students the opportunity to pursue, under faculty guidance, academic work not available in other courses.
Prerequisite: Consent of Graduate Studies Committee

MRC 5391 Independent Study
3 semester hours

This course offers an intensive study of a selected topic or problem in rehabilitation with critical reference to appropriate literature.
Prerequisite: Consent of Graduate Studies Committee

MRC 5188 Pre-Clinical Seminar in Rehabilitation Counseling
1 semester hour
This course is designed to familiarize students with essential clinic policies and procedures prior to initiation of clinical client contact which begins in the following semester. Students will receive training on clinical documentation requirements, client safety procedures, billing policies, file management policies, and assessment procedures. Student will be asked to demonstrate basic counseling skills.

MRC 5189 Practicum in Rehabilitation Counseling
Practicum in Rehabilitation Counseling is the student's introduction to clinical practice. This course contributes to the development of student's counseling skills through completion of at least 40 hours of direct service with actual clients. In addition to practicum site responsibilities, students will meet weekly for group supervision, site supervision, and individual counseling supervision.
Prerequisite: Admission to candidacy and consent of Graduate Studies Committee

MRC 5090 Internship in Rehabilitation Counseling
The clinical internship affords students the opportunity to provide supervised clinical rehabilitation counseling services directly to individuals with disabilities in a variety of settings. Clinical rehabilitation counseling services may include individual psychotherapy, traditional vocational rehabilitation counseling, psychological assessment, case management, and participation in interdisciplinary case conferences.
Prerequisite: Admission to candidacy and consent of Graduate Studies Committee

MRC 5093 Seminar in Rehabilitation
This course includes reading, reports, and discussion of special areas of rehabilitation. May be repeated for credit.
Prerequisite: Consent of Graduate Studies Committee

MRC 5096 Special Topics
Contemporary topics in rehabilitation counseling are presented by special arrangement. Students also may elect to conduct an in-depth investigation of an area of research or professional interest on an independent study basis.
Prerequisite: Consent of Graduate Studies Committee

Health Care Sciences

Acting Chair
Scott A. Smith, Ph.D.

FACULTY

Professors

Gordon Green, M.D., UT Southwestern Medical Center, 1968

Charles McConnel, Ph.D., University of Southern California, 1970

Scott A. Smith, Ph.D., University of North Texas Health Science Center, 1999

Jon W. Williamson, Ph.D., University of North Texas Health Science Center, 1992

Associate Professor

Kim Hoggatt Krumwiede, Ph.D., University of North Texas, 2016

Assistant Professors

Christopher Faulkner, Ph.D., University of North Texas, 2015

Palma Longo, Ph.D., Columbia University, 2001

Masaki Mizuno, Ph.D., Waseda University, Japan, 2005

Yulia Piller, Ph.D., University of North Texas, 2016

Instructors

Mu Huang, Ph.D., Southern Methodist University, Dallas, 2017

Ramona Dorough, M.A., University of Texas at Tyler, 2013

Faculty Associates

Jay Gibson, Ph.D., University of Rochester, 1995

Kyle Molberg, M.D., University of Texas Medical School at Houston, 1985

Alisa Winkler, Ph.D., University of California, Los Angeles, 1977

OBJECTIVES

This Department provides basic and interdisciplinary courses available to all health professions Programs. In addition, it serves as an administrative base for the Prosthetics-Orthotics and Radiation Therapy Programs, along with the Area Health Education Center and the Community Prevention and Intervention Unit.

The Department is also home to the Division of Health Care Education and Research. The Division directs and supports interdisciplinary education and research, not only between UT Southwestern School of Health Professions Departments and Programs, but also within the entire Medical Center.

Enrollment in many courses in this section is restricted. Students interested in taking any of the following courses as electives should consult their advisors or the Office of the Dean.

COURSE DESCRIPTIONS

Basic Biomedical Sciences

HCS 5207 Introduction to Neuroscience
2 semester hours
This course consists of lectures and small-group laboratory sessions. It is offered by Neurology and Neurotherapeutics from UT Southwestern Medical School, with assistance from Cell Biology, Physiology, Psychiatry, Anesthesiology and Pain Management, Neuroradiology, and Neuroscience. Basic concepts in anatomy, cellular physiology, and neural-systems physiology are covered in the course. Emphasis is given to the practical application of these basic anatomical and physiological principles to human neuroscience and neuropathology. Admission to HCS 5207 is limited to students enrolled in the Radiation Therapy, Physician Assistant Studies, Physical Therapy, and Prosthetics-Orthotics Programs.

HCS 5230/5330 Health Care Research
2-3 semester hours

Instruction provides an overview of the research process, with focus on evidence-based health care research. Lecture topics include critical literature evaluation, research theory, measurement, design, statistical analysis, and interpretation. Small-group sessions with research advisors emphasize practical application of research concepts and foster project development. Admission to HCS 5230/5330 is limited to students enrolled in the Radiation Therapy, Physical Therapy, Physician Assistant Studies, Clinical Nutrition, and Prosthetics-Orthotics Programs.

HCS 5306 Introduction to Pathology (Lecture and Demonstration)
3 semester hours
This course offers an introduction to general pathology. Basic pathologic processes are emphasized, and specific disease entities are used extensively to illustrate principles. Clinical manifestations of disease are correlated with their pathology. Admission to HCS 5306 is limited to students enrolled in the Radiation Therapy, Physician Assistant Studies, Physical Therapy, and Prosthetics-Orthotics Programs.

HCS 5308 Human Anatomy (Lecture)
3 semester hours
Instruction offers a comprehensive study of the structure and function of human body systems and their mechanisms. Emphasis is placed on the major characteristics of each body system and its relationship to other systems. Lectures emphasize basic correlative clinical concepts. Admission to HCS 5308 is limited to students enrolled in degree-granting Programs at UT Southwestern including Physical Therapy, Physician Assistant Studies, and Prosthetics-Orthotics Programs.
Prerequisite: Concurrent enrollment in HCS 5309.

HCS 5309 Human Anatomy (Dissection Laboratory)
3 semester hours
This course presents an advanced study of the human body and includes cadaver dissection. Admission to HCS 5309 is limited to Physical Therapy, Physician Assistant Studies, and Prosthetics-Orthotics Programs.
Prerequisite: Concurrent enrollment in HCS 5308.

HCS 5407 Human Physiology
4 semester hours
A comprehensive study of the basic functions of the body systems and their interrelationships is offered in this course. Admission to HCS 5407 is limited to students enrolled in the Radiation Therapy, Physical Therapy, Physician Assistant Studies, and Prosthetics-Orthotics Programs.

Behavioral Sciences and Other Courses

HCS 5106 Professional Development
1 semester hour
This course introduces the major principles and issues involved in interpersonal skills for inter-disciplinary health care. Topics covered include interpersonal effectiveness, verbal and nonverbal communication, building teams, managing conflict, behavioral change, and ethics.

Physical Therapy

Degree Offered
Doctor of Physical Therapy

Chair
Ross Querry, PT, Ph.D.

Vice Chair
Beth Deschenes, PT, DPT, OCS

FACULTY

Professors

Edward Mulligan, PT, DPT, OCS, SCS, ATC, Regis University, 2008

Ross Querry, PT, Ph.D., University of North Texas Health Science Center, 1999

Associate Professors

Beth Deschenes, PT, DPT, OCS, Arcadia University, 2012

Julie DeVahl, PT, DPT, OCS Texas Tech University Health Science Center, 2014

Karen McCain, PT, DPT, NCS Regis University, 2006

Susan Simpkins, PT, Ed.D., Columbia University, 1999

Jason Zafereo, PT, Ph.D., OCS, FAAOMPT, Texas Women's University, 2015

Assistant Professors

Traci Betts, DPT, CCS, UT Southwestern Medical Center, 2010

Tara Dickson, DPT, OCS, Duke University, 2012

Emily Middleton, DPT, OCS, SCS, UT Southwestern Medical Center, 2011

Leslie Nelson, MPT, OCS UT Southwestern Medical Center, 2003

Staci Shearin, MPT, NCS, University of North Carolina, 2006

Instructor

Erin Perez, DPT, NCS, Washington University, 2011

Faculty Associate

Egle Bauzaite, DPT, NCS, UT Southwestern Medical Center, 2013

OBJECTIVES

The faculty of the Department of Physical Therapy at UT Southwestern School of Health Professions is committed to providing students with the highest quality of academic and clinical education, sufficient to attain licensure and yield graduate physical therapists who are autonomous clinical practitioners with a generalist background. Graduates from this Program will be prepared to assume leadership roles in rehabilitation services, prevention and health maintenance programs, and professional and community organizations.

The fundamental objective is to graduate students who will provide optimal physical therapy care for communities, groups, and individuals. To achieve the primary professional objective of facilitating the individual's optimal function within the community, the physical therapist must master substantial breadth and depth of knowledge in the basic and applied sciences, incorporate critical thinking skills, exercise humility, demonstrate integrity and professional behaviors, and bridge theory with practice.

The graduate must be able to examine, evaluate, diagnose, prognose, and intervene accurately in the management of impairments, functional limitations, and disabilities of the neuromuscular, cardiopulmonary, musculoskeletal, and integumentary systems. School of Health Professions graduates should be capable of preservation and restoration of movement and physical function through evidence-based clinical practice, interdisciplinary research, and professional education. Of equal importance, our graduates focus on promoting health and wellness as a means for improving the quality of life of their patients and clients.

ACCREDITATION

The program is accredited by the Commission on Accreditation in Physical Therapy Education.

REQUIREMENTS FOR ADMISSION

Applicants for the Physical Therapy program must:

1. Complete a baccalaureate degree in any field prior to admission with a recommended GPA of at least 3.0;
2. Earn credit in the following prerequisite courses with a grade of C or better prior to entrance into the Program;
3. Complete and submit scores for the Graduate Record Examination (completed in last five years);
4. Complete the application process through PTCAS; and
5. Submit at least three letters of recommendation.

Prerequisite Courses

Course	**Hours**
College Algebra	3
Statistics (must include hypothesis testing)	3
Physics (must be for science majors and include lab)	8
Chemistry (must be for science majors and include lab)	8
General Psychology*	3
Abnormal or developmental psychology*	3
Biology (general lower or upper division)	8
Human Anatomy	4

* Child psychology or child developmental psychology will not satisfy the prerequisite.
** Exercise physiology will not satisfy the prerequisite. For Dallas, Tarrant, and Collin county colleges, BIOL 2401 and BIOL 2402 will satisfy both anatomy and physiology prerequisites.

Recommended Courses

Medical Terminology
Exercise Physiology (does not fulfill the Human Physiology requirement)
Kinesiology
Neurophysiology
Child Psychology

The Physical Therapy Program accepts only full-time students. Factors considered for selection among applicants include cumulative GPA, last 60 hours GPA, prerequisite courses GPA, GRE scores, and individual qualities ascertained through the application, letters of recommendations, and an interview. Selection for admission to the Physical Therapy Program is highly competitive and is based on the criteria outlined in the Evaluation of Applicants section in the Student Information page.

ESSENTIAL FUNCTIONS

In addition to essential functions for all students (see Entrance Requirements in the Student Information chapter), each student in the Physical Therapy Program must be able to:

1. Participate in supervised clinical activities for 8-10 hour days (40-50 hours/week) up to 12 consecutive weeks.

2. Demonstrate sufficient vision to perform such tests as (but not limited to), reading and interpreting a medical record, inspecting and debriding wounds, performing observational movement analysis, and determining movement and gait deviations.

3. Demonstrate sufficient upper and lower body strength, coordination, and sensation to perform safe and appropriate techniques for activities such as (but not limited to), prolonged standing, manual muscle testing, guarding a patient, transferring a patient, palpation, soft tissue mobilization, joint mobilization, and cardiac resuscitation.

4. Demonstrate sufficient hearing to perform auscultation of the heart, blood vessels, and lungs.

5. Demonstrate sufficient problem solving skills to learn to make a differential diagnosis, establish appropriate treatment plans, determine effectiveness of those plans, and make appropriate modifications.

6. Demonstrate professional demeanor and behavior; perform in an ethical manner in all dealings with peers, faculty, staff, and patients.

CURRICULUM

The curriculum is a 31-month program that begins in May.

The curriculum offers professional education for students majoring in physical therapy. Students admitted to the Program are candidates for a Doctor of Physical Therapy degree (DPT) conferred by UT Southwestern Medical Center.

The academic experiences consist of theory in the basic, clinical, and professional sciences and professional skills. To be eligible to enter the clinical-education phase of the Program, a student must have satisfactorily completed all previous courses.

The clinical education courses provide an opportunity to integrate professional knowledge and skills in a clinical setting. These experiences are offered by more than 200 affiliated institutions located throughout the United States but predominately in Texas. Each affiliated institution has a center coordinator for clinical education. Three eight-week and one 12-week full-time clinical experiences provide students a broad exposure to both general and specialty areas of physical therapy.

Graduates of this Program are eligible to take the national licensure examination given by the Federation of State Boards of Physical Therapy.

Program of Instruction

Courses may be exchanged between semesters or terms without any published notice.

First Year
Summer

Course		**Hours**
HCS 5308	Human Anatomy Lecture	3
HCS 5309	Human Anatomy Dissection Laboratory	3
HCS 5407	Human Physiology	4
DPT 5139	Clinical Correlation	1
HCS 5207	Introduction to Neuroscience	2
Total		**13**

Fall		
HCS 5106	Professional Development	*
DPT 5140	Elements of Pharmacology for the Physical Therapist	1
DPT 5151	PT Procedures	1
DPT 5150	Professional Practice Development I	1
DPT 5302	Therapeutic Interventions I	3
HCS 5306	Introduction to Pathology	3
DPT 5320	Tests and Measures	3
DPT 5351	Clinical Kinesiology	3
Total		**15**

Spring		
HCS 5106	Professional Development	1
DPT 5138	Integumentary Patient/Client Management	1
DPT 5236	Evidence-Based Clinical Research I	2
DPT 5237	Pathokinesiology	2
DPT 5257	Professional Practice Development II	2
DPT 5304	Geriatric Patient/Client Management	3
DPT 5431	Musculoskeletal Patient/Client Management I	4
Total		**15**

* Year-long course, completed in Spring

Second Year

Summer

Course		**Hours**
DPT 5133	Human Development	1
DPT 5330	Musculoskeletal Patient/Client Management II	3
DPT 5335	Therapeutic Intervention II	3
DPT 5340	Neurological Patient/Client Management I	3

DPT 5134	Service Learning (Camp John Marc)	1
Total		**11**

Fall		
DPT 5137	Evidence-Based Clinical Research II	1
DPT 5242	Neuromuscular Patient/Client Management II	2
DPT 5306	Pediatric Patient/Client Management	3
DPT 5342	Prevention, Health Promotion, Fitness and Wellness	3
DPT 5401	Clinical Experience I	4
Total		**13**

Spring		
DPT 5132	Evidence-Based Clinical Research III	1
DPT 5218	Assistive Technology in Rehabilitation	2
DPT 5305	Medical Practice Management	3
DPT 5316	Professional Practice Management	3
DPT 5317	Advanced Therapeutic Techniques	3
DPT 5344	Cardiovascular and Pulmonary Patient/Client Management	3
Total		**15**

Third Year		
Summer		
Course		**Hours**
DPT 5402	Clinical Experience II (8 weeks)	4
DPT 5403	Clinical Experience III (8 weeks)	4
Total		**8**

Fall		
DPT 5604	Clinical Experience IV (12 weeks)	6

Program Total	**96**

SPECIAL REQUIREMENTS

The curriculum is sequenced; therefore, all courses included in each semester or term are considered prerequisites to any course in the following semester. A student must complete each course with a minimum grade of C and must maintain a cumulative GPA of at least 3.0,

have no academic deficiencies, and have no incompletes. The student is advised to consult the policy statement of the Department upon admission to the Program.

GRADUATION REQUIREMENTS

A candidate for the Doctor of Physical Therapy degree in the UT Southwestern School of Health Professions must meet all of the following requirements:

1. The student must demonstrate a high order of scholarly achievement in physical therapy, including appropriate research and professional competencies. The Program's Student Progress Committee determines whether adequate mastery has been acquired.
2. The student must satisfactorily complete a minimum of 96 semester hours at UT Southwestern School of Health Professions.
3. The student must discharge all financial obligations to the Medical Center. In the event of nonpayment, one or more actions may be taken by the Dean: a) readmission may be denied; b) the student's grades and official transcript may be withheld; and c) the degree to which the student would otherwise be entitled to may be withheld.
4. The student must maintain at least a 3.0 cumulative grade point average, have no academic deficiencies, and have no incompletes.
5. The student must complete the academic requirements listed in his or her degree plan, including completion of any academic deficiencies in prerequisite courses, by the times stated in the student's official letter of acceptance. The student is responsible for submitting official documentation of successful completion of the prerequisites to the Office of Enrollment Services.
6. Complete all requirements for graduation within five years of the original date of matriculation.

COURSE DESCRIPTIONS

See other Departmental listings in this catalog for descriptions of courses that do not begin with the prefix 'DPT.'

DPT 5132 Evidence-Based Clinical Research III
1 semester hour
This final course offers students the opportunity to further develop their written and oral communication skills and improve their use of technology through a formal presentation of

research findings at a scientific symposium. A scientific paper summarizing the research project and findings is submitted.

DPT 5133 Human Development

1 semester hour

This course provides a focused overview of early childhood development that provides a foundation for pediatric physical therapist practice. Changes in physical, motor, cognitive, language and social-emotional development are examined from infancy through late childhood. Students gain practical experience observing developmental skills in typically developing young children. The perspective that human development is strongly influenced by a dynamic interaction between the individual, the environment and the task creates as foundation for this course and for Pediatric Patient/Client Management later in the curriculum.

DPT 5134 Service Learning

1 semester hour

A service learning experience takes place when a community agency has a well-defined need that can be met by a professional education entity. Both participating entities receive benefits in a service learning experience. For this experience the Muscular Dystrophy Association (MDA) realizes the significant impact of using professional physical therapy students as counselors in the camp environment. The physical therapy students have opportunities to reinforce new knowledge and skills in a real life situation with a specialized population, children with neuromuscular diseases. The cognitive knowledge and psychomotor skills needed to be successful in the environment are taught in traditional classroom and laboratory sessions prior to the service learning experience. Students, daily in the camp environment, must display professionalism, demonstrate empathy, resolve conflict, perform visual assessments, and practice basic functional skills with a pediatric population. There is time allotted during and after camp for reflection and to serve in a consultative fashion for the camp facility and the MDA regarding changes in the environment or the type and flow of activities for the upcoming year.

DPT 5137 Evidence-Based Clinical Research II

1 semester hour

This course is a continuation of DPT 5236. It allows the student to determine appropriate information sources and databases and apply literature search skills to develop a research topic. In collaboration with a faculty mentor, the student develops an in-depth review of the literature on a defined clinical question. Students make a critical analysis of current literature appropriate for the projects.

DPT 5138 Integumentary Patient/Client Management

1 semester hour

This course prepares students for clinical practice by providing the basis and rationale for evaluating and treating patients with pathology or impairments of the integumentary system. The class will also introduce the concepts of universal precautions and infection control. Students will learn to identify primary prevention/risk factors and impairments, and apply appropriate interventions for disorders of the integumentary system and soft-tissue dysfunction. Laboratory sessions allow the student to gain experience in the techniques utilized in clinical practice.

DPT 5139 Clinical Correlation

1 semester hour

This seminar accompanies HCS 5308 Human Anatomy and HCS 5309 Human Anatomy Dissection Laboratory and integrates the basic sciences into clinical applications in physical therapy. This course emphasizes basic clinical skills such as muscle and bony landmark palpation and dermatome identification. The cognitive knowledge of muscle origin, insertion, and action is presented concurrently with the appropriate psychomotor skill of palpation.

DPT 5140 Elements of Pharmacology for the Physical Therapist

1 semester hour

This course prepares physical therapists for their role as autonomous practitioners by providing instruction in general pharmacologic principles, drug effects of commonly prescribed medications, and over-the-counter drugs. Additional information on potential drug interactions and physical therapy interventions, indications, contraindications and side effects will be presented. This course introduces the student to electronic resources and current texts that facilitate clinical screening in clinical practice.

DPT 5150 Professional Practice Development I

1 semester hour

This is the first of three courses dedicated to practice management. Students investigate professionalism as it relates to accountability, altruism, compassion/caring, integrity, communication, and education in practice. Students are introduced to legal and ethical issues related to physical therapy. Principles of teaching and learning are explored and practiced. This lecture and seminar course offers an overview of the physical therapist's role in the health care delivery system, using the *Guide to Physical Therapist Practice*.

DPT 5151 Physical Therapy Procedures

1 semester hour

Physical Therapy Procedures is an introductory clinical skills course that focuses on body mechanics, positioning and draping, basic wheelchair management, transfers, bed mobility, and gait training of patients referred to physical therapy. These topics will be addressed in the context of patient care in a variety of settings. Additional topics will address special patient populations and introductory techniques and principles of massage and equipment management in critical care.

DPT 5218 Assistive Technology in Rehabilitation

2 semester hours

This course is designed to provide students with entry-level knowledge of orthotic and prosthetic management of their patients. This course also provides the students with an opportunity to learn the basic principles of wheelchair prescription.

DPT 5236 Evidence-Based Clinical Research I

2 semester hours

This course provides an overview of the research process with a focus on evidence-based health care research. Lecture topics include the evidence-based medicine approach, critical appraisal of medical literature, study design, reliability, validity, statistical analysis and its interpretation. Students will also work in small group journal club based sessions with assigned faculty will emphasize practical utilization and application of the evidence-based approach to the appraisal of discipline specific literature.

DPT 5237 Pathokinesiology

2 semester hours

This course examines the concepts of pathokinesiology. Emphasis is placed on recognizing and describing abnormal posture, movement, and gait patterns in the laboratory. Also included are fractures and orthopaedic radiology.

DPT 5341 Prevention, Health Promotion, Fitness and Wellness

3 semester hours

The American Physical Therapy Association recognizes that physical therapists are uniquely qualified to assume leadership positions in efforts to prevent injury and disability, and fully supports the positive roles that physical therapists and physical therapist assistants play in the promotion of healthy lifestyles, wellness, and injury prevention. **HOD P06-93-25-5** This course is designed to present concepts and information to allow students to develop skills necessary to assess, evaluate, design and implement interventions to promote wellness, fitness and prevention of disease and impairments to individuals, groups and communities.

DPT 5242 Neuromuscular Patient/Client Management II

2 semester hours

This course addresses the rehabilitation management of adult patients with neurological dysfunctions. Physical therapy examination, evaluation, diagnosis, prognosis and plan of care for specific adult diseases are covered in lecture and laboratory experiences. Clinical opportunities enhance the development of clinical competence with the physical therapy management of this patient population.

DPT 5257 Professional Practice Development II

2 semester hours

This is the second of three professional practice courses addressing physical therapy practice. This course builds documentation skills, emphasizing the elements from the *Guide to Physical Therapist Practice* and components of the *International Classification of Functioning, Disability and Health (ICF)* model. Student skills include planning, organizing, and documenting a plan of care that incorporates primary, secondary, and tertiary care provided by PT and other practitioners as appropriate. Students are presented various models of health care and systems of reimbursement for PT services. Students explore current issues influencing physical therapist practice.

DPT 5302 Therapeutic Intervention I

3 semester hours

This course is designed to present anatomical and physiological principles to allow students to develop integrated therapeutic exercise interventions. Students will develop an acquired understanding of physiological responses to various types of training and develop skills in prescription, implementation, and modeling of exercise programs. Exercise components of strength, aerobic/anaerobic conditioning, flexibility, balance and stage of healing/rehabilitation will be examined. Evidence of appropriate, safe and effective exercise design and proper exercise biomechanics and prescription parameters will be addressed with all interventions. Exercise consideration for special populations and across the age span will be covered. Concepts are presented in lecture and practiced in the laboratory.

DPT 5304 Geriatric Patient/Client Management

3 semester hours

This is an active learning experience in Geriatrics for students in the DPT curriculum. The team-based, case-based format for the course affords students time to discuss readings, integrate lectures and ask their own relevant questions. Environmental, psychological and physiological changes for the aging adult from diverse backgrounds are addressed. Students have hands on opportunities for practicing geriatric interviews, assessments and program planning. There are

multiple opportunities for the student to demonstrate their academic and clinical competency with the physical therapy health care management of the aging adult.

DPT 5305 Medical Practice Management

3 semester hours

Medical Practice Management is designed to teach students how to perform a medical screening as well as well as how to make sound clinical decisions regarding treatment, treatment and referral, or referral. A systems approach will be used to study the signs and symptoms associated with selected medical conditions. Students will be introduced to a variety of medical conditions and their management that are not easily categorized into musculoskeletal, neurological, cardiopulmonary, and integumentary disorders.

DPT 5306 Pediatric Patient/Client Management

3 semester hours

This course is designed to develop a student's ability to provide evidence-based physical therapy, family-centered care to children and families in a variety of practice settings. Students learn about common pediatric neuromuscular, musculoskeletal and cardiopulmonary disorders, including associated impairments in body structure and function, activity limitations and participation restrictions. Pediatric tests and measures are introduced in class and practiced during lab sessions with typically developing children. Laboratory sessions also offer students experience in developing intervention programs for children with a range pediatric conditions.

DPT 5316 Professional Practice Management

3 semester hours

This practice management course addresses the "business" of physical therapy and introduces the student to the day-to-day operations of a physical therapy facility. This course builds on the on the principles of patient/client management and professional ethics presented in the previous professional practice development curriculums. Students will develop an appreciation for autonomous business ownership and develop the skills and resources necessary to establish, manage, and/or supervise a business or department that provides physical therapy related services or products. Students will develop an executive business plan and be exposed to community members to inquire about best practice development and management protocols and trends. Students will subsequently present their business plan to their classmates detailing their business concept, marketing strategies, organizational structure, and financial considerations. The students will be responsible for providing critical analysis of the business structure and feedback on the likelihood of success. The class will allow the students to build a professional resume and experience "mock" interviews for job opportunities. The students will take a practice licensing examination to identify areas of deficit and attend an overview

provided by the state licensing board on the application and maintenance process for their license as well as the rules and regulation that govern the practice of physical therapy in the state of Texas. Preparation strategies and practice opportunities for the licensure will be offered. Involvement in district, state, and national physical therapy issues and conference will be encouraged and culminate in a capstone presentation from the student's professional portfolio activities.

DPT 5317 Advanced Therapeutic Techniques

3 semester hours

This course will provide students with the opportunity to investigate and further develop intervention techniques for neurological and orthopaedic patients. Students will evaluate current literature for clinical evidence supporting specialty intervention techniques that are available and utilized in clinical practices. Students will have the opportunity to develop skill in techniques based on patient case models and scenarios. The final six weeks of the course will be devoted to one of four topics selected by each student: neuro interventions, pediatric interventions, sports medicine, and women's health.

DPT 5320 Tests and Measures

3 semester hours

This course introduces the concepts of measurement for people with dysfunctions. Valid and reliable outcome measures for individuals with impairments, functional limitations, and disabilities associated with dysfunction in the neurological, musculoskeletal, cardiopulmonary, and integumentary systems are presented. Students have the opportunity to become proficient in the administration of these outcome measurements through lecture, lab, and clinical experience.

DPT 5330 Musculoskeletal Patient/Client Management II

3 semester hours

This course prepares students for clinical practice by providing the basis and rationale for evaluating and treating patients with pathology or impairments of the peripheral musculoskeletal system. The principles and rationale for physical therapy examination, evaluation, diagnosis, prognosis and intervention for upper extremity and lower extremity dysfunctions are presented. Laboratory sessions are related to lecture content and are designed to aid students in integrating didactic material with actual patient cases while also acquiring specific hands on skills. These specific neuromusculoskeletal examination and treatment skills include: performing a client interview, manual muscle testing, reflex testing, sensory examination, joint assessment, joint mobilization, joint manipulation, soft tissue assessment and treatment, palpation, and performance of special tests.

DPT 5335 Therapeutic Intervention II

3 semester hours

This course applies previous basic exercise knowledge and techniques to an integrated patient intervention program, using exercise programming and progression for upper/lower extremities and the spine. Students are introduced to the use of selected physical agents, including thermotherapy, actinotherapy, electrotherapy, and deep thermotherapy. Factors such as stage of tissue healing, surgical procedures, patient medical history, impairments, and functional limitations are considered for exercise programming. Basic principles of operation of therapeutic instruments and recognition of indications/contraindications/precautions in the clinical application of these agents are discussed. This course offers a foundation needed in clinical decision making regarding patient care and recovery. Evidence of efficacy is addressed with all interventions. Concepts are presented in lecture and practiced in the laboratory.

DPT 5340 Neuromuscular Patient/Client Management I

3 semester hours

In order to manage the patient/client with a neurologic disorder, students must understand the foundations of neurologic physical therapist practice. The first part of the course focuses on the pathophysiology and medical management of persons with progressive and non-progressive neurologic diagnoses. Presentations on these diagnoses are made by physicians and physical therapists who are experts in care of persons with neurologic conditions. In the second part of the course, students learn about the motor control problems associated with neurologic injuries that contribute to abnormal postural control and mobility, using a case-based approached. An integrated framework for making decisions in neurologic physical therapists practice is presented and applied to issues in patient management. In lab sessions, students learn about selected examination tools commonly used to quantify and qualify the motor control problems associated with a range of neurologic disorders. Literature on neuroplasticity is examined and concepts relevant to patient/client management are emphasized. Students are introduced to the evidence-based principles of motor learning that have been shown to influence the rate of motor recovery after neurologic injury. This course prepares the student for NPM II, which focuses on evidence-based approaches to the examination and treatment of patients with progressive and non-progressive neurologic disorders.

DPT 5344 Cardiovascular and Pulmonary Patient/Client Management

3 semester hours

This course will cover principles of pathology, exercise physiology, and physical therapy interventions for the treatment of patients with cardiopulmonary conditions. This course includes instruction of examination and evaluation of the cardiac and pulmonary systems and integration into physical therapy practice.

DPT 5351 Clinical Kinesiology

3 semester hours

Biomechanical principles of human movement are presented. Physics, physiology, and anatomy are integrated to investigate normal and abnormal movement of the spine and extremities. Osteokinematics and arthrokinematics are included. Gait, posture, and movement are analyzed in laboratory settings to enhance the lectures.

DPT 5431 Musculoskeletal Patient/Client Management I

4 semester hours

This course addresses the rehabilitative and medical management of patients with axial and pelvic musculoskeletal dysfunction. Classroom sessions allow for the integration of reading assignments, current best evidence, and the instructor's experience to support a framework for clinical decision-making during classification (diagnosis) and treatment of patients with spinal dysfunctions. Lab sessions allow for practice and application of classroom content, namely: history taking, objective examination testing, exercise training, traction application, and the use of manual therapy, including thrust manipulation. Learning is reinforced and tested through the use of actual patient cases as a means of developing critical thinking and problem solving in the areas of differential diagnosis, prognosis, and management planning. Guest physician lectures are included for a medical perspective on diagnosis and non-op/surgical/post-op management of patients with spinal dysfunctions.

DPT 5401 Clinical Experience I

4 semester hours

This first, full-time, eight-week clinical experience provides students with the opportunity to integrate and practice their didactic knowledge with clinical decision making. The emphasis of this clinical experience is on patient examination, evaluation, treatment planning, goal setting, and delivery of interventions in the orthopedic outpatient setting. The Physical Therapist Manual for the Assessment of Clinical Skills (PT MACS) is used to plan learning opportunities and assess student performance. Self-assessment at the end of this experience provides opportunity for students to set goals for the next clinical experience. (Travel and living expenses are the responsibility of the student.)

DPT 5402 Clinical Experience II

4 semester hours

Entry-level performance on all aspects of patient/client management in a selected practice setting is the expected outcome following an eight-week, full-time clinical experience. The PTMACS is used to assess student performance based on safe and effective practice. Cognitive,

affective, and psychomotor skills are assessed in a clinical setting. (Travel and living expenses are the responsibility of the student.)

DPT 5403 Clinical Experience III
4 semester hours
Entry-level performance in all aspects of patient/client management in a selected practice setting is the expected outcome following an eight-week, full-time clinical experience. The PTMACS is used to assess student performance based on safe and effective practice. Cognitive, affective, and psychomotor skills are assessed in a clinical setting. (Travel and living expenses are the responsibility of the student.)

DPT 5604 Clinical Experience IV
6 semester hours
Entry-level performance in all aspects of patient/client management in a selected practice setting is the expected outcome following a 12-week full-time clinical experience. The PTMACS is used to assess student performance based on safe and effective practice. Cognitive, affective, and psychomotor skills are assessed in a clinical setting. Students gaining experience in a more specialized are of physical therapy practice are expected to meet the standards considered entry-level in that setting. (Travel and living expenses are the responsibility of the student.)

Physician Assistant Studies

Degree Offered
Master of Physician Assistant Studies

Chair
Temple Howell-Stampley, M.D., M.B.A., F.A.C.P.

Medical Director
Laurette K. Dekat, M.D., M.P.H.

FACULTY

Professors

Temple Howell-Stampley, M.D., M.B.A., F.A.C.P.

M.D., East Carolina University School of Medicine, 1993; MBA, UT Dallas, 2015

P. Eugene Jones, Ph.D.
Professor Emeritus, Distinguished Teaching Professor
Ph.D., Claremont Graduate University, 1991

Associate Professors

David Klocko, M.P.A.S.
Distinguished Teaching Professor
MPAS, University of Nebraska Medical Center, 1998

Venetia L. Orcutt, Ph.D., M.B.A., B.S.
Distinguished Teaching Professor
Ph.D., University of North Texas, 2007; M.B.A, University of Dallas, 1994; B.S., UT Southwestern Medical Center, 1984

Assistant Professors

Carolyn Bradley-Guidry, M.P.A.S., University of Nebraska Medical Center, 2006

Veronica Coleman, M.P.A.S., LSU Health Sciences Center Shreveport, 2012

Laurette K. Dekat, M.D., UT Health Science Center at Houston, 1993; M.P.H., Johns Hopkins Bloomberg School of Public Health, 1987

Kassidy James, M.H.S., Drexel University, 2006

John Kane, M.P.A.S., University of North Texas Health Science Center, 2007

Tiffany Kindratt, M.P.H., UT Health Science Center Houston, 2009

Daytheon Sturges, M.P.A.S., LSU Health Sciences Center Shreveport, 2012

OBJECTIVES

The Department of Physician Assistant Studies was established to prepare broadly trained health professionals to carry out patient-care functions traditionally performed only by a physician. Successful graduates of this Program will have had the opportunity to prepare themselves for conducting a sophisticated medical interview and physical examination, for analyzing laboratory data, and for organizing and integrating these findings. From the results,

he or she should be able to make assessments, diagnoses, and therapeutic plans to determine appropriate diagnostic and therapeutic steps. Graduates of this Program participate on the health care team by performing diagnostic and therapeutic procedures, prescribing medications, assisting in surgery, and coordinating the services of community-health agencies in order to serve the needs of the patient.

It is emphasized that a physician assistant (PA) is a nationally certified and state-licensed medical professional who practices medicine on health care teams with physicians and other providers. They practice and prescribe medication in all 50 states, the District of Columbia, the majority of the U.S. territories, and the uniformed services.

Graduates of this Program are eligible to take the national certification examination given by the National Commission on Certification of Physician Assistants.

ACCREDITATION

The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) has granted Accreditation-Continued to the Physician Assistant Program sponsored by UT Southwestern. Accreditation-Continued is an accreditation status granted when a currently accredited program is in compliance with the ARC-PA Standards.

Accreditation remains in effect until the Program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the Standards. The approximate date for the next validation review of the Program by the ARC-PA will be March, 2023. The review date is contingent upon continued compliance with the Standards and ARC-PA policy.

REQUIREMENTS FOR ADMISSION

Applicants to the Physician Assistant Studies Program are required to have a baccalaureate degree from a regionally accredited U.S. or Canadian institution prior to matriculation. Three letters of reference are required with the application. Applicants must submit official scores from the Graduate Record Examination (GRE) in order to be received by Sept. 1 of the year of application submission. The GRE is not required of applicants who have a U.S.-acquired master's degree or higher. A minimum grade-point average of 3.0 in science courses and 3.0 overall are required for admission, along with the following prerequisite course work:

Course	Hours
Human Anatomy*	4
Human Physiology*	4
Genetics	3
General Chemistry*	8
Organic Chemistry*	4
Microbiology*	4
General Psychology	3
Mathematics (college algebra or higher)	3

*Science courses must be for science majors and include a laboratory.

All prerequisite courses must be completed with a grade of C or better and within the past 10 years. Additionally, all prerequisite courses must be completed by the date the application is submitted.

Recommended Electives

Pharmacology	Immunology
Spanish	Medical Terminology
Biochemistry	Human Sexuality
Cellular Biology	Statistics

Factors considered for selection of applicants are cumulative grade-point average, science grade-point average, consistency or improvement in academic performance, attitude, communication skills, leadership, and personal qualities such as maturity, empathy, and career motivation. Direct patient-care experience in a health care setting is highly recommended.

Admission to the Physician Assistant Studies Program is competitive and is based on the criteria outlined in the Evaluation of Applicants section of Student Information.

ESSENTIAL FUNCTIONS

In addition to essential functions for all degree candidates, each degree candidate in the Physician Assistant Studies Graduate Program must be able to:

1. Participate in supervised clinical activities for extended periods of time, including rotations that require overnight call.

2. Demonstrate sufficient vision to perform tasks such as (but not limited to) wound care and skin lesion identification.
3. Demonstrate sufficient hearing to perform auscultation of the heart and vessels, breath sounds, and abdominal sounds.
4. Demonstrate sufficient upper and lower body strength, coordination, dexterity, and sensation to perform such activities as (but not limited to) prolonged standing, complete physical examination, and surgical and clinical procedures such as suturing, casting, venipuncture, emergency procedures, and Basic and Advanced Cardiac Life Support.
5. Demonstrate sufficient problem-solving skills to learn to make a differential diagnosis, establish appropriate treatment plans, determine effectiveness of those plans, and make appropriate modifications;
6. Demonstrate professional demeanor and behavior; perform in an ethical manner in all dealings with peers, faculty, staff, and patients.

CURRICULUM

This 30-month professional curriculum is composed of four didactic semesters of lecture and bedside demonstration in basic medical and behavioral sciences and four semesters of clinical rotations in various clinical disciplines.

During the clinical phase of the curriculum, students participate in the activities of a health care team in order to apply medical principles of patient care and to gain experience in actual patient care. Clinical training occurs in a diverse mixture of outpatient facilities across the Dallas/Fort Worth area and in teaching hospitals with formal affiliations with UT Southwestern Medical Center to include William P. Clements Jr. University Hospital, Zale Lipshy University Hospital, and Parkland Memorial Hospital.

Instructional Phase
Didactic Phase

Because the Program is structured as a continuous sequence, where each semester requires sequential completion of previous semesters, all students progress on the same timetable.

Summer

Course		**Hours**
MPA 5101	Professional Practice Issues I	1

HCS 5207	Introduction to Neuroscience	2
HCS 5308	Human Anatomy (Lecture)	3
HCS 5309	Human Anatomy Dissection Lab	3
HCS 5407	Human Physiology	4
Total		**13**

Fall

MPA 5102	Integration Skills I	1
MPA 5215	Pharmacology I	2
MPA 5305	Patient Evaluation I	3
MPA 5509	Clinical Medicine I	5
HCS 5306	Introduction to Pathology	3
HCS 5106	Professional Development	*
Total		**14**

Spring

MPA 5103	Integration Skills II	1
MPA 5130	Evidence-Based Medicine	1
MPA 5204	Clinical Prevention and Population Health	2
MPA 5206	Patient Evaluation II	2
MPA 5216	Pharmacology II	2
MPA 5510	Clinical Medicine II	5
HCS 5106	Professional Development	1
Total		**14**

Summer

MPA 5208	Clinical Skills	2
MPA 5231	Psychiatry	2
MPA 5307	Patient Evaluation III	3
MPA 5511	Clinical Medicine III	5
Total		**12**
Total didactic hours		**53**

*Year-long course, completed in Spring

Clinical Phase

Course		Hours
MPA 5350	Professional Practice Issues II	3
MPA 5422	Women's Health	4
MPA 5423	Pediatrics	4
MPA 5428	Clinical Elective	4
MPA 5430	Psychiatry	4
MPA 5432	Emergency Medicine	4
MPA 5433	Surgery	4
MPA 5450	Directed Study	4
MPA 5451	Infectious Disease	4
MPA 5830	Internal Medicine	8
MPA 5831	Family Medicine	8
MPA 5832	Primary Care Preceptorship	8
Total combined hours		**112**

SPECIAL REQUIREMENTS

Students are expected to maintain a high academic performance and display appropriate professional and ethical behavior during all phases of their education.

Students must maintain a cumulative GPA of 2.75 or better in all didactic phase courses in order to participate in clinical rotations. Adequate clinical knowledge and judgment and appropriate professional behavior are factors determining satisfactory performance. All academic and professional behavior policies are detailed in the Department of Physician Assistant Studies' Student Guidelines.

GRADUATION REQUIREMENTS

A candidate for the degree of Master of Physician Assistant Studies at UT Southwestern School of Health Professions must meet all of the following requirements:

1. The student must demonstrate a high order of scholarly achievement in the Department of Physician Assistant Studies, including appropriate professional competencies. The program's Student Progress Committee determines whether adequate mastery has been acquired.
2. The student must complete satisfactorily a minimum of 112 semester hours at UT Southwestern School of Health Professions.

3. The student must discharge all financial obligations to the Medical Center. In the event of nonpayment, one or more actions may be taken by the Dean: a) readmission may be denied; b) a student's grades and official transcript may be withheld; and c) the degree to which the student would otherwise be entitled may be withheld.
4. The student must maintain at least a 2.75 cumulative GPA, have no academic deficiencies, and have no incompletes. An "F" (or failure to pass) in any required subject must be removed prior to graduation.
5. The student must complete the academic requirements listed on his or her degree plan, including completion of any academic deficiencies in prerequisite courses, by the times stated in the student's official letter of acceptance. The student is responsible for submitting official documentation of successful completion of the prerequisites to the Office of Enrollment Services.
6. The student must pay a graduation fee designated to partially offset the costs associated with the diploma and diploma cover production, regalia, and the commencement ceremony. All students completing a degree or certification must pay the fee without regard to whether they attend the commencement ceremony or not.
7. The student must complete all required courses in the degree plan. For courses with letter grades, a grade of C or higher must be maintained in every letter grade course, with the exception of MPA 5509, MPA 5510 and MPA 5511, in which minimum grades of B must be maintained. For courses graded Pass/Fail, a grade of Pass must be achieved. A cumulative grade-point average of 2.75 must be maintained. For courses graded Pass/Fail, a grade of pass must be achieved. The student must successfully complete all clinical rotations. Clinical evaluations must reflect an acceptable level of performance and professional conduct.
8. The student must complete and submit a Physician Assistant Clinical Knowledge Rating and Assessment Tool (PACKRAT) examination following completion of the didactic curriculum and again after completion of the majority of clinical rotations.
9. The student must successfully complete all required summative assessments at the end of the clinical curriculum.
10. The student must successfully complete a graduate project as approved by program faculty.
11. The student must complete all requirements for graduation within five consecutive years of the original date of matriculation

COURSE DESCRIPTIONS

See other Departmental listings in this catalog for descriptions of courses that do not begin with the prefix MPA.

Didactic Courses

MPA 5101 Professional Practice Issues I
1 semester hour
This course introduces the physician assistant profession, including local, state, and national professional organizations and roles. Current licensure, certification, and recertification requirements are described, as well as issues facing the PA profession. Introduction to the concepts of various health care teams and delivery systems is included, with particular emphasis on the physician-PA team relationship.

MPA 5102 Integration Skills I
1 semester hour
Small-group tutorials utilize case-based learning strategies to emphasize integration of material presented during the semester.

MPA 5103 Integration Skills II
1 semester hour
Small-group tutorials utilize case-based learning strategies to emphasize integration of material presented during the semester.

MPA 5130 Evidence-Based Medicine
1 semester hour
This course provides an overview of the research process and evidence-based health care research. Lecture topics include critical literature evaluation, research theory, measurement, design, statistical analysis, and interpretation. Class sessions emphasize practical application of research concepts and foster graduate project development. The class emphasizes the practical utilization and application of the evidence-based approach to the appraisal of discipline-specific literature, quality improvement and patient safety.

MPA 5204 Clinical Prevention and Population Health
2 semester hours
This course introduces the practice of disease prevention and population health. Through course readings, lectures, discussions, and panel presentations, the student is exposed to an evidence-based approach to disease screening and methods for promoting health behavior in diverse populations.

MPA 5208 Clinical Skills
2 semester hours
Techniques in basic radiology and clinical procedures are introduced to include injections, EKG interpretation, gowning and gloving in the operating room, sterile technique, venipuncture, casting, CPR, and suturing.

MPA 5215 Pharmacology I
2 semester hours
This course offers an analytic and systems-based approach to pharmacologic agents, including classifications, indications, contraindications, actions, toxic effects, and monitoring of pharmacotherapeutic regimens.

MPA 5216 Pharmacology II
2 semester hours
This course is an extension of Pharmacology I with added emphasis on the systems approach to pharmacologic management of disease processes and therapeutic modalities.

MPA 5231 Psychiatry
2 semester hours
This course offers an overview of human behavior and psychopathology, including clinical evaluation and neurological assessment of patients, human sexuality, organic mental disorders, substance abuse and dependency, mood disorders, personality disorders, anxiety disorders, and adjustment disorders. Psychotherapy and pharmacotherapy options to treat the various disorders are discussed.

MPA 5305 Patient Evaluation I
3 semester hours
Instruction is given in the elicitation and presentation of patient histories and the performance of a complete physical examination.

MPA 5206 Patient Evaluation II
2 semester hours
This course is an extension of MPA 5305 Patient Evaluation I.

MPA 5307 Patient Evaluation III
3 semester hours

This course is an extension of Patient Evaluation I and II. In weekly small-group tutorials, students concentrate on the critical-thinking skills relevant to developing and defending differential diagnoses and treatment plans on hospitalized patients following the elicitation of a complete history and physical examination, providing verbal and written feedback to faculty. Students also perform focused, objective-structured clinical exams to assess ability to perform problem-focused assessment. Developing differential diagnoses and cost-effective treatment plans are emphasized.

MPA 5509 Clinical Medicine I
5 semester hours
This course offers a systematic study of the epidemiology, presentation, differential diagnosis, diagnosis, and management of disease processes based on the most current test blueprint disease lists for the Physician Assistant National Certifying Examination.

MPA 5510 Clinical Medicine II
5 semester hours
This course is an extension of Clinical Medicine I.

MPA 5511 Clinical Medicine III
5 semester hours
This course is an extension of Clinical Medicine I and II.

Clinical Courses

MPA 5350 Professional Practice II
3 semester hours
This two-week course occurs near the end of the clinical phase of the Program. Students are provided the opportunity to acquire knowledge and skills specifically to enhance clinical practice knowledge, including elements of accountability, proper diagnostic coding and reimbursement issues, scope of practice, state law for licensure and certification, credentialing, professional liability, and the commitment to lifelong learning.

MPA 5422 Women's Health
4 semester hours
This four-week rotation integrates both inpatient and outpatient clinical experiences. The student has an opportunity to become familiar with the management of labor and delivery, outpatient gynecology, family planning, and outpatient prenatal and postpartum care.

MPA 5423 Pediatrics
4 semester hours
This four-week outpatient rotation in general pediatrics includes both well- and sick-child care encountered in ambulatory care settings. The student is expected to acquire proficiency in normal child development and anticipatory guidance.

MPA 5428 Clinical Elective
4 semester hours
This four-week rotation may be completed in any field of medicine chosen by the student.

MPA 5430 Psychiatry
4 semester hours
This four-week rotation consists of either a two-week experience in a psychiatry emergency room and in inpatient facilities or a four-week experience at the clinic at the Dallas County Jail. Students are offered opportunities to obtain practical experience and assume patient-care responsibilities in the continuing care of patients in a psychiatric setting. Students study the basics of DSM-V diagnostic criteria and psychiatric nosology, and the clinical presentation and treatment of psychiatric disorders.

MPA 5432 Emergency Medicine
4 semester hours
This four-week rotation emphasizes the roles and functions of the Emergency Department. The student has the opportunity to gain experience in trauma evaluation and management, and learn the medical and surgical aspects of emergency intervention. The student also has the opportunity to experience management and treatment of patients triaged to urgent care and fast tracks for health care delivery.

MPA 5433 Surgery
4 semester hours
This four-week rotation explores practical experience with general surgical problems. The student participates in the management of hospitalized patients, including assisting in surgery, preoperative and postoperative care, and daily rounds. This rotation also requires attendance at structured teaching conferences and tutorials.

MPA 5450 Directed Study
4 semester hours
This four-week period is intended to provide enrolled students adequate time for the final preparation and submission of the graduate project manuscript as required for program

graduation. Projects include evidence-based medicine, quality improvement, systematic reviews or others with approval.

MPA 5451 Infectious Disease
4 semester hours
This four-week rotation offers the student the opportunity to experience the evaluation and treatment of patients with infectious diseases. The student is directly involved in the multidisciplinary approach and management of patients diagnosed with infectious diseases in both inpatient and outpatient settings.

MPA 5830 Internal Medicine
8 semester hours
During this eight-week inpatient rotation, students become integral members of the medical team providing patient care in an inpatient setting. Each student is expected to acquire proficiency in gathering medical data and making tentative assessments and plans while participating in the management of hospitalized patients.

MPA 5831 Family Medicine
8 semester hours
This eight-week rotation is designed to provide a practical patient-care experience in an outpatient primary-care setting. Students are provided the opportunity to deliver acute and continuing care and to address health maintenance issues in keeping with the primary-care philosophy and under the supervision of a family practitioner. During the course of this rotation, students should demonstrate the skills to practice evidence-based medicine and complete an evidence-based research project.

MPA 5832 Primary Care Preceptorship
8 semester hours
This eight-week outpatient rotation is completed in a primary care focused discipline (general/family medicine, general pediatrics, general internal medicine, women's health, or geriatrics) chosen by the student. The preceptorship integrates clinical experience with a focus on competencies in leadership, communication, quality improvement, patient safety, and management skills.

Prosthetics-Orthotics

Degree Offered
Master of Prosthetics-Orthotics

Program Director
Leslie Gray, M.Ed., C.P.O., L.P.O., FAAOP

FACULTY

Assistant Professors

Leslie Gray, M.Ed., UT Brownsville, 2007; B.S., C.P.O., UT Southwestern Medical Center, 2002; Fellow American Academy of Orthotists and Prosthetists, 2016

Miguel N. Mojica, B.S., C.P.O., UT Southwestern Medical Center, 1987

Kirsten Tulchin-Francis, Ph.D., Texas Woman's University, 2012; M.S., Marquette University, 2001; B.S., Trinity College, 1998

David Wilson, M.P.O., C.P.O., UT Southwestern Medical Center, 2011; B.S., The College of William and Mary, 2010; Fellow American Academy of Orthotists and Prosthetists, 2017

Instructor

Tiffany Graham, B.S., C.P.O, Georgia Institute of Technology, 2007; M.S., Trinity University, 2005

OBJECTIVES

The Prosthetics-Orthotics Program offers a solid foundational knowledge base in related sciences and teaches the clinical, professional, and technical skills sufficient to enter residency training. Graduates from this Program are trained to meet the needs of patients requiring either replacement of a partially or totally absent limb, or fitting of a brace to a disabled spine or limb. Graduates will function as leaders in prosthetic-orthotic practices and serve as active members of interdisciplinary health care teams, collaborating with other health care professionals in rehabilitating people with chronic disabling illnesses, injuries, or birth defects.

Successful graduates will have the necessary skills to assess physical and functional deficits using a variety of evaluation procedures and measurements to determine the nature and extent of the patient's needs and plan a treatment approach based on an analysis of individual patient needs, fabricate and fit prosthetic-orthotics devices, assess the effectiveness of the fit

and function of devices, and make appropriate adjustments when indicated. Furthermore, Program graduates will have the preliminary skills needed to pursue research and development in the field of prosthetics-orthotics and will be able to contribute to clinical research, professional meeting scientific content, and publish articles in professional journals.

ACCREDITATION

To ensure that graduates are eligible for certification and licensure, the Master of Prosthetics-Orthotics Program has earned accreditation from the Commission on Accreditation of Allied Health Education Programs upon the recommendation of the National Commission on Prosthetic & Orthotic Education.

REQUIREMENTS FOR ADMISSION

The Admissions Committee of the Prosthetics-Orthotics Program determines the admissibility of an applicant into the Program in accordance with the quality of his or her credentials. An interview is required. In addition to the general admission requirements specified in the Student Information section of this catalog, applicants to the program must satisfy the following requirements:

1. Complete a bachelor's degree from a regionally accredited institution by the end of May of the year you apply. (A prosthetics and orthotics-related major, such as biomechanical engineering, biomechanics, biology, or applied physiology is recommended);
2. Earn the minimum recommended cumulative and science GPA of 3.0 on a 4.0 scale in science and overall;
3. Complete and submit an online application with OPCAS available mid-July;
4. Submit three letters of recommendation (instructor, employer, undergraduate adviser, volunteer experience, or leadership position supervisor, other academic/research mentor);
5. Have visited, shadowed, volunteered, or worked in a prosthetic-orthotic clinic; and
6. Submit a Graduate Record of Examination score (Scores are acceptable within five years of taking the exam);
7. Complete the 37 semester hours of specific prerequisite courses (listed below).

MASTER OF PROSTHETICS-ORTHOTICS PREREQUISITE COURSES HOURS

Biology with lab (for science majors) *	8
Human Anatomy and Physiology with lab **	8
Physics with lab (for science majors) *	8
Chemistry with lab (for science majors)	4
College Algebra or higher	3
Statistics	3
Psychology (Human Growth and Development or Abnormal)	3
Total	**37**

*All required science classes must be for science majors and include a laboratory component.
** Courses must have been taken within the past eight years.

The prerequisite courses must be completed with a grade of C or better. Prerequisite courses are not offered at UT Southwestern. Classes begin in late May each year. The length of the Program is five semesters.

ESSENTIAL FUNCTIONS

In addition to essential functions for all students (see Entrance Requirements in the Student Information chapter), each student in the Prosthetics-Orthotics Program must be able to:

1. Participate in supervised clinical activities for eight-hour days;
2. Demonstrate sufficient vision to perform such tasks as (but not limited to) interpreting a medical record, inspecting wounds, and determining gait deviations;
3. Physically and visually utilize chemicals and power tools while following all appropriate safety precautions;
4. Demonstrate the physical capability to work in a prosthetics and orthotics laboratory for four-hour periods;
5. Demonstrate sufficient arm strength, balance, coordination, and sensation to perform such activities as (but not limited to) patient casting, manual muscle testing, range-of-motion testing, and other musculoskeletal evaluations.

CURRICULUM

The Prosthetics-Orthotics Program curriculum leads to a master's degree with academic eligibility to take the certification examinations of the American Board for Certification in Orthotics, Prosthetics and Pedorthics.

The faculty combines educational, professional, and technical skills in a coordinated approach to the academic and clinical aspects of the student's education, offering an opportunity to attain the basic competencies necessary for an entry-level prosthetist and orthotist. Students also engage in research projects and community service as a part of their learning experience.

PROGRAM OF INSTRUCTION

First Year

SUMMER		**HOURS**
HCS 5308	Human Anatomy (Lecture)	3
HCS 5309	Human Anatomy Dissection Laboratory	3
HCS 5407	Human Physiology	4
HCS 5207	Introduction to Neuroscience	2
MPO 5101	Introduction to Laboratory Skills and Materials in Prosthetics and Orthotics	1
Total		**13**

FALL		
MPO 5102	Clinical Evaluation Tools	1
HCS 5306	Introduction to Pathology	3
MPO 5203	Biomechanics of Human Movement 1	2
MPO 5504	Orthotic Management of the Lower Limb 1	5
MPO 5505	Prosthetic Management of the Lower Limb 1	5
HCS 5106	Professional Development	**
Total		**16**

SPRING		
MPO 5106	Biomechanics of Human Movement 2	1
MPO 5407	Orthotic Management of the Lower Limb 2	4
MPO 5308	Orthotic Management of the Spine	3
MPO 5409	Prosthetic Management of the Lower Limb 2	4
HCS 5230	Health Care Research	2

HCS 5106	Professional Development	1
MPO 5103	Laboratory Skills and Materials in Prosthetics-Orthotics II *	1
Total		**16**

* Elective, students may enroll once in either their 3rd, 4th or 5th semester, space permitting
** Year-long course, completed in Spring

Second Year

SUMMER		**HOURS**
MPO 5310	Prosthetic Management of the Upper Limb	3
MPO 5411	Clinical Experience	4
MPO 5112	Clinical Research 1	1
Total		**8**

FALL		
MPO 5313	Orthotic Management of the Upper Limb	3
MPO 5115	Clinical Research 2	1
MPO 5416	Contemporary Practice and Synthesis	4
Total		**8**
Total Hours		**61**

GRADUATION REQUIREMENTS

A candidate for the degree of Master of Prosthetics-Orthotics must meet all the following requirements:

1. The student must demonstrate a high order of scholarly achievement in prosthetics-orthotics, including appropriate professional competencies. The Program's Student Progress Committee determines whether adequate mastery has been acquired.
2. The student must complete satisfactorily a minimum of 60 semester hours at UT Southwestern School of Health Professions.
3. The student must discharge all financial obligations to the Medical Center. In the event of nonpayment, one or more actions may be taken by the Dean: a) readmission may be denied; b) the student's grades and official transcript may be withheld; and c) the degree to which the student would otherwise be entitled may be withheld.
4. The student must maintain at least a 2.7 cumulative grade-point average, have no academic deficiencies, and have no incompletes.

5. The student must complete the academic requirements listed on his or her degree plan, including completion of any academic deficiencies in prerequisite courses, by the times stated in the student's official letter of acceptance. The student is responsible for submitting official documentation of successful completion of the prerequisites to the Office of Enrollment Services.
6. The student must pay a graduation fee designated to partially offset the costs associated with diploma and diploma cover production, regalia, and the commencement ceremony. All students completing a degree or certification must pay the fee whether they attend the commencement ceremony or not.

COURSE DESCRIPTIONS

See other Departmental listings in this catalog for descriptions of courses that do not begin with the prefix MPO.

MPO 5101 Introduction to Laboratory Skills and Materials in Prosthetics and Orthotics
1 semester hour
This course introduces equipment and tools used in the fabrication of prostheses and orthoses. Proper safety techniques and operating procedures in the laboratory environment are stressed. Prosthetic and orthotic material characteristics are introduced.

MPO 5102 Clinical Evaluation Tools
1 semester hour
Instruction provides an overview of clinical evaluation tools commonly used to develop treatment plans and assess outcomes for patients with orthopaedic and neurologic impairments. Students have the opportunity to become proficient in selected measurement techniques and evaluation tools through lecture, lab, and clinical experience.

MPO 5103 Laboratory Skills and Materials in Prosthetics Orthotics II
1 semester hour
This course is designed to enhance skills learned in MPO 5101 by providing clinically relevant hands-on experience in fabrication techniques and material technology. The student will learn side by side with faculty and technical staff in the program's patient care fabrication laboratory.

MPO 5106 Biomechanics of Human Movement 2
1 semester hour

This course is a continuation of MPO 5203 and is designed to develop a fundamental understanding of the anatomical, neuromuscular, and biomechanical principles of human movement. Emphasis is on the importance of mechanical principles in relation to analysis of the human body at rest and in motion, in both normal and pathological conditions.

MPO 5112 Clinical Research 1

1 semester hour

Students, with an assigned faculty mentor, develop a project proposal to answer a defined clinical question. The project may be an in-depth literature review or an experimental research pilot project. Students also may be assigned to ongoing projects. This course focuses on identifying and critically analyzing the literature, using skills learned in the HCS 5230 course. Guidelines for research involving human subjects also are covered.

MPO 5115 Clinical Research 2

1 semester hour

This course is a continuation of MPO 5112. Students summarize their findings to form conclusions to their clinical questions. This capstone project results in a final scientific paper summarizing the project and a formal presentation to develop communication skills further.

MPO 5203 Biomechanics of Human Movement 1

2 semester hours

This course is designed to develop a fundamental understanding of the anatomical, neuromuscular, and biomechanical principles of human movement. Emphasis is on the importance of mechanical principles in relation to analysis of the human body at rest and in motion, in both normal and pathological conditions.

MPO 5308 Orthotic Management of the Spine

3 semester hours

Instruction provides a comprehensive study of short- and long-term spinal orthotic patient management. It includes evaluation, treatment-plan formulation, biomechanics, and orthotic design for the spine. Fabrication and fitting of selected orthoses are presented.

MPO 5310 Prosthetic Management of the Upper Limb

3 semester hours

This course provides a comprehensive study of the short- and long-term upper-limb prosthetic patient management. It includes evaluation, treatment-plan formulation, biomechanics, and prosthetic design. Fabrication and fitting of selected prostheses are presented.

MPO 5313 Orthotic Management of the Upper Limb

3 semester hours

This course provides a comprehensive study of short- and long-term upper-limb orthotic patent management. It includes evaluation, treatment-plan formulation, biomechanics, and orthotic design. Fabrication and fitting of selected orthoses are presented.

MPO 5416 Contemporary Practice and Synthesis

4 semester hours

This course presents prosthetic and orthotic practice within the context of current health care. Three distinct areas of focus are presented: practice management, advanced technology, and clinical reasoning and synthesis. Instruction emphasizes documentation and coding skills and includes regulations related to reimbursement by federal, state, and private payers, patient confidentiality, quality assurance and accountability, health care economics, marketing, codes of professional responsibilities, and licensure and certification. It also covers professional organizations, international service, and lifelong personal and professional development. Resumé development and interviewing skills for securing a residency position are included. Instruction also builds on current prosthetic and orthotic design principles by introducing additional available technologies and research trends. It includes computer-aided design, myoelectric prosthetic and orthotic control, functional electrical stimulation, microprocessor-controlled joints, management of the high-activity individual, advanced prosthetic socket design and suspension, complex orthotic gait and device design, targeted reinnervation, and osseointegration. This course is offered in the final semester to further prepare the student for the role of prosthetic-orthotic resident. Prior course work is synthesized and facilitated through patient interaction, case studies, and other means to enhance patient management and problem-solving skills.

MPO 5407 Orthotic Management of the Lower Limb 2

4 semester hours

This course provides a comprehensive study of short- and long-term lower-limb orthotic patient management and proximal to the knee. It includes evaluation, treatment-plan formulation, biomechanics, and orthotic design. Fabrication and fitting of selected orthoses are presented.

MPO 5409 Prosthetic Management of the Lower Limb 2

4 semester hours

This course provides a comprehensive study of short- and long-term lower-limb prosthetic patient management at and proximal to the knee. It includes evaluation, treatment-plan formulation, biomechanics, and prosthetic design. Fabrication and fitting of selected prostheses are presented.

MPO 5411 Clinical Experience
4 semester hours
This course provides the opportunity to apply learned skills during a multiweek clinical experience. It may occur in a general practice setting or a specialty practice such as upper-limb prosthetics, pediatrics, acute management, Department of Defense facility or Department of Veterans Affairs facility.

MPO 5504 Orthotic Management of the Lower Limb 1
5 semester hours
This course provides a comprehensive study of short- and long-term lower-limb orthotic patient management distal to the knee. It includes evaluation, treatment-plan formulation, biomechanics, and orthotic design. Fabrication and fitting of selected orthoses are presented, including material characteristics. International standards and product failure also are discussed.

MPO 5505 Prosthetic Management of the Lower Limb 1
5 semester hours
This course provides a comprehensive study of short- and long-term lower-limb patient management distal to the knee. It includes evaluation, treatment-plan formulation, biomechanics, and prosthetic design. Fabrication and fitting of selected prostheses are presented, including material characteristics. International standards and product failure also are discussed.

Radiation Therapy

Degree offered
Master of Radiation Therapy

Director
Kameka Rideaux, M.B.A., RT (R)(T)

FACULTY

Hak Choy
Medical Advisor of the Radiation Therapy Program
Professor and Chair of the Department of Radiation Oncology
M.D., UT Medical Branch at Galveston, 1987

Kameka Rideaux
Assistant Professor
UT M.D. Anderson Cancer Center, 2001, M.B.A., University of Phoenix, 2008; McNeese State University, 2000

Steven Russell
Adjunct Instructor
J.D., University of Memphis School of Law, 1985; M.P.H., UT School of Public Health, 2010

Strahinja Stojadinovic
Assistant Professor
Ph.D., Kent State University, 2004

OBJECTIVES

The Master of Radiation Therapy Program is a full-time curriculum that comprises six semesters of intensive study. Students in the Program can expect to be involved in either didactic classes or clinical rotations five days a week (Monday through Friday) for approximately 40 hours. Classes and clinical rotations are usually held during normal weekday business hours. The Program does not offer weekend or online classes.

The curriculum is a competency-based clinical learning experience that prepare learners to perform as an entry-level radiation therapist. First-year Program courses strengthen knowledge of the health care industry, patient care, oncologic pathology, radiobiology, medical physics, sectional anatomy, and dosimetry. Second-year courses integrate these ideas into more advanced concepts encompassing clinical oncology, treatment planning, patient simulation, and treatment delivery.

Beginning in the second year's summer term, experiences in the classroom are complemented by hands-on clinical experience in radiation simulation, treatment, and patient care. Over the course of three terms, clinical rotations give students the opportunity to achieve competence and confidence in the treatment of patients with ionizing radiation.

The curriculum is sequenced to create an effective and efficient path for learning. Many of the courses in a given semester are prerequisites for the courses that follow in the next semester. Some sequencing may change from year to year without notice. Please note: Practicing radiographers who have already taken radiation biology and pathology courses still need to take these Program courses because of their focus on cancer treatment.

ACCREDITATION

The Radiation Therapy Program is accredited by the Joint Review Committee on Education in Radiologic Technology (20 N. Wacker Dr., Suite 2850; Chicago, IL 60606-3182; 312-704-5300).

REQUIREMENTS FOR ADMISSION

Master of Radiation Therapy

The Admissions Committee for the Radiation Therapy Program determines the admissibility of an applicant based on prerequisite coursework, degree completed, GRE scores, essay, recommendation letters, and interview scores.

The application process consists of submitting all application materials, completing 24 hours of clinical observation, and attending an interview with the Admissions Committee.

Radiation Therapy students must meet all of UT Southwestern School of Health Professions general admission requirements.

1. Bachelor's degree from a regionally accredited college or university (recommended in Sciences or Health Sciences);
2. Minimum cumulative grade point average of 2.7 on a 4.0 scale;
3. Minimum cumulative GPA of 2.7 on a 4.0 scale in natural science; and
4. A grade of C or better on all prerequisite coursework;
5. If an international student, submission of TOEFL scores;
6. GRE test scores;
7. Complete and submit an online application;
8. Submit three letters of recommendation. (from undergraduate advisers, instructors, or professors, employers, or volunteer supervisors.);
9. Complete an on-campus interview;
10. Complete the Radiation Therapy prerequisite courses listed below:

MASTER OF RADIATION THERAPY PREREQUISITE COURSES

COMPONENT AREAS	TEXAS COMMON COURSE NUMBERS	CREDIT HOURS

Communication		
English Composition	ENGL 1301, 1302, 2311, 2321, 2326 or equivalent	3
Speech	SPCH 1311 or equivalent	3
Mathematics*		
Pre-Calculus	MATH 2412 or equivalent	3
Natural Sciences		
Chemistry*	CHEM 1405 or equivalent	4
Physics*	PHYS 1401, 1402 or equivalent	8
Anatomy and Physiology	BIOL 2401, 2402 or equivalent	8

* Higher level courses may be substituted. For example, calculus can be substituted for pre-calculus.
* Highly recommend that applicants complete a course in interpersonal communication.
* Highly recommend to applicants that have completed prerequisite course work more than five years, to enroll in additional science and math courses. Please contact the Program office for more information.

ESSENTIAL FUNCTIONS

In addition to essential functions for all students (see Entrance Requirements in the Student Information chapter), each student in the Radiation Therapy Program must be able to:

1. Participate in supervised clinical activities, including walking and standing, for eight-hour days in assigned clinical area;
2. Demonstrate sufficient vision acuity to monitor patients, input data, read computer monitors, and distinguish markings in dim lighting;
3. Demonstrate sufficient strength to lift, carry, and move items weighing up to 40 pounds;
4. Distinguish and interpret audio signals from equipment;
5. Demonstrate sufficient upper- and lower-body strength to move, lift, and transport patients, and
6. Learn to reason, analyze, synthesize, integrate, and apply knowledge to be clinically competent, critical thinkers, effective communicators, and to demonstrate professionalism.

CURRICULUM

First Year

SUMMER	**HOURS**
HCS 5308 Human Anatomy	3
HCS 5309 Human Anatomy Lab	3
HCS 5407 Human Physiology	4
RT 5101 Clinical Reasoning and Decision-Making I	1
RT 3201 Oncology Nursing and Patient Care	2
Total	**13**

FALL	**HOURS**
RT 5201 Technical Radiation Therapy Professional Development	2
RT 5102 Clinical Reasoning and Decision-Making II	1
HCS 5306 Introduction to Pathology	3
RT 5303 Clinical Radiation Oncology I	3
HCS 5106 Professional Development	0
(1 hour awarded in spring semester)	
RT 3203 Medical Imaging	2
RT 5203 Pharmacology I	2
RT 5206 Health Law and Policies	2
RT 5300 Professional Leadership (current Radiation Therapists only)	0
(If this course is chosen, enrollment is required each semester until completion of required studies; 3 credit hours will be awarded upon completion and all requirements should be met by the end of the student's enrollment in the Radiation Therapy Program.)	
Total	**15**

SPRING	**HOURS**
RT 3212 Sectional Anatomy (MRI Concepts)	2
RT 5401 Advanced Radiotherapy and Medical Physics	4
RT 5307 Radiation Therapy Evidence-Based Research I	3
RT 5301 Radiobiology	3
HCS 5106 Professional Development	1
RT 5207 Health Care and Human Resource Management	2
HCS 5330 Health Care Research	3
Total	**18**

Second year

SUMMER	**HOURS**
RT 5308 Radiation Therapy Evidence Based Research II	3
RT 5202 Clinical Practicum I	2
RT 5211 Health Care Outcomes and Quality Management	2
RT 5212 Emerging Technology in Radiation Therapy	2
RT 3314 Medical Dosimetry and Treatment Planning I	3
RT 5304 Clinical Radiation Oncology II	3
Total	**15**

FALL	**HOURS**
RT 4315 Medical Dosimetry and Treatment Planning II	3
RT 5502 Clinical Practicum II	5
RT 5503 Clinical Practicum III	5
Total	**13**

SPRING	**HOURS**
RT 5504 Clinical Practicum IV	5
RT 5310 Capstone Project in Radiation Therapy	2
RT 5505 Clinical Practicum V	5
RT 5300 Professional Leadership (current Radiation Therapists only)	3
Total	**12**

COURSE DESCRIPTIONS

See other Departmental listings in this catalog for courses that do not begin with the prefix RT.

RT 3201 Oncology Nursing and Patient Care
2 semester hours
Content is designed to provide the student with foundation concepts and competencies in assessment and evaluation of the patient for both external beam and brachytherapy procedures. Psychological and physical needs and factors affecting treatment outcome are presented and examined. Routine and emergency care procedures are discussed.

RT 3203 Medical Imaging
2 semester hours
This course is designed to establish a knowledge base in factors that govern and influence the production and recording of radiographic images. Both diagnostic and radiation therapy imaging equipment are discussed.

RT 3212 Sectional Anatomy
2 semester hours
Topographic, sectional, and radiographic anatomy are studied through the use of various diagnostic images, including plain films, nuclear medicine scans, sonograms, computer tomography, magnetic resonance images, and other imaging modalities.

RT 3314 Medical Dosimetry I
3 semester hours
This course covers the basic concepts in treatment planning, including treatment accessories and their relationship to dose distribution. Derivations and definitions of dosimetric terms and basic treatment calculations are presented. Treatment planning and computerized systems are introduced.

RT 4315 Medical Dosimetry II
3 semester hours
This course continues the concepts presented in RT 3314 with intensity-modulated radiation therapy, brachytherapy, stereotactic techniques, and nontraditional fractionation schemes studies. New treatment modalities and their impact on dose distribution are presented.

RT 5101 Clinical Reasoning and Decision-Making I
1 semester hour
In this course, systematic approaches to clinical decision-making will be explored as they apply to radiation therapy for cancer, from the perspective of the complex interplay of factors in three domains: tumor biology, technical radiation therapy, and individual patients. Course will highlight gaps in current literature relating to a variety of primary cancer sites. Learners will engage in decision-making exercises based on these issues.

RT 5102 Clinical Reasoning and Decision-Making II
1 semester hour
In this course, systematic approaches to clinical decision-making will continue to be explored as they apply to radiation therapy for cancer, from the perspective of the complex interplay of factors in three domains: tumor biology, technical radiation therapy, and individual patients.

Instruction will highlight gaps in current literature relating to a variety of primary cancer sites. Learners will engage in decision-making exercises based on these issues.

RT 5201 Technical Radiation Therapy
2 semester hours
The course offers an overview of cancer and the specialty of radiation therapy. The medical, biological, and pathological aspects, as well as the physical and technical aspects, are discussed. The history, roles, and responsibilities of the radiation therapist are presented. Institutional and Program policies are discussed as well.

RT 5202 Clinical Practicum I
2 semester hours
Clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, dosimetry, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist or equivalent.

RT 5203 Pharmacology I
2 semester hours
An analytic approach to pharmacologic agents including indications, contraindications, actions, toxic effects, and relationship to other treatments, including preparation, selection, classification, and control of drugs.

RT 5206 Health Laws and Policies
2 semester hours
This course will explore various policies that underlie regulation of the provision of health care in the United States.

RT 5207 Health Care and Human Resource Management
2 semester hours
This course provides students with an overview of concepts and issues related to health care leadership. It is generally a required course for any subsequent health care management courses. Through the examination of management topics and health care situations, the student will explore the skills and knowledge needed to be successful in a diverse health care environment. Topics include health care leadership, organizational design as it relates to the uniqueness of health care organizations, managing professionals, and diversity in the workplace.

RT 5211 Health Care Outcomes and Quality Management
2 semester hours
This course examines the historical development, current concepts and techniques, and future trends related to the monitoring and evaluation of the quality of health care services, specifically radiation oncology. Cases will be used to present current issues surrounding attempts to integrate quality management and increased accountability in health care organizations.

RT 5212 Emerging Technology in Radiation Therapy
2 semester hours
This course will explore the use of technology in health care and how it is changing the practice of radiation oncology.

RT 5300 Professional and Clinical Leadership (current Radiation Therapists only)
3 semester hours
This course will introduce the principles of leadership in health care, and the characteristics that contribute to a strong clinical and professional leader in the 21st century. Learners will be engaged in reflective exercises to appreciate and build their own attributes and cognitive styles as leaders.

RT 5301 Radiobiology
3 semester hours
This course will follow the deposition of ionizing radiation in DNA, in cells, organs, and populations. Instruction will include discussion of features which influence outcomes, such as the "size" of the target, repair of the target, and how epigenetic effects might modify outcomes (e.g., signaling processes from the membrane to the DNA). Focus will be placed on how the "quality" of the physical radiation exposure affects biological outcomes.

RT 5303 Clinical Radiation Oncology I
3 semester hours
RT 5304 Clinical Radiation Oncology II
3 semester hours
These encompass the entire field of radiation oncology and are designed to be taught over a period of two semesters. Instruction will provide the student with the fundamentals of clinical radiation oncology. The medical, biological, and pathological aspects as well as the physical and technical aspects will be discussed. The diagnosis, treatment prescription, the documentation of treatment parameters and delivery, emergency procedures, and patient condition and education needs will also be presented, discussed, examined, and evaluated. The course is also

designed to examine and evaluate the management of neoplastic disease using knowledge in arts and sciences, while promoting critical thinking and the basis of ethical clinical decision making. The epidemiology, etiology, detection, diagnosis, patient condition, treatment, and prognosis of neoplastic disease will be presented, discussed, and evaluated in relationship to histology, anatomical site, and patterns of spread. Oncologic emergencies and management of such will be discussed. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to the skills required to analyze complex issues and make informed decisions while appreciating the character of the profession.

RT 5307 Radiation Therapy Evidence-Based Research I

3 semester hours

This course provides an overview of the research process and evidence-based health care research. Lecture topics include critical literature evaluation, research theory, measurement, design, statistical analysis, and interpretation. Small group sessions with research advisers emphasize practical application of research concepts and foster project development. The class emphasizes the practical utilization and application of the evidence-based approach to the appraisal of discipline-specific literature. The research course sequence prepares students to develop research and writing skills for publications or presentations. The capstone project of this course sequence culminates with a research project to be submitted with intentions of being published in the *ASRT Radiologic Technologists* or *Radiation Therapy Journal*.

RT 5308 Radiation Therapy Evidence-Based Research I

3 semester hours

This course is a continuation of RT 5307.

RT 5310 Capstone Project in Radiation Therapy

2 semester hours

This course integrates previous knowledge and skills with significant, relevant issues, and subjects in professional practice. Emphasizes professional role development of the new graduate and preparation for the national credentialing board exam.

RT 5401 Advanced Radiotherapy and Medical Physics

4 semester hours

This course will provide learners with a conceptual framework with which to evaluate current advances in design, delivery, and assessment of modern radiation treatment. The course offers a multidisciplinary approach of clinical, physics, biological, and technical expertise with a group of experts focusing on present and future directions of radiation oncology.

RT 5502 Clinical Practicum II
5 semester hours
RT 5503 Clinical Practicum III
5 semester hours
RT 5504 Clinical Practicum IV
5 semester hours
RT 5505 Clinical Practicum V
5 semester hours
These are a continuation of RT 5202 and are designed to be taught over a period of two semesters. Clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, dosimetry, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist or equivalent.

Student Organizations

A number of organizations offer students opportunities for association with individuals of shared interests or backgrounds. Information on registered or sponsored student organization can be found in the "General Information" section of the catalog.

A list of organizations is available from the Bryan Williams, M.D. Student Center or on the UT Southwestern website at:

http://www.utsouthwestern.edu/life-at/campus-academic-life/student-center/student-orgs/index.html#

Commencement

The varying requirements of the Programs of the School of Health Professions result in different completion times. Degrees may be conferred at the end of each semester, but the commencement ceremony is held in December following the conclusion of the fall term.

All degree and post-baccalaureate certificate candidates are expected to participate in commencement exercises. Advancement or deferral of commencement is not permitted. In the event attendance is not possible, a petition for the award *in absentia* should be made to the Office of the Dean at least three weeks prior to the scheduled event. All students who have completed degree and post-baccalaureate certificate requirements since the previous commencement will be listed in the commencement program.

Degrees and post-baccalaureate certificates earned are posted to the students' permanent academic records at the end of the semester in which all degree or certificate requirements are met. If required for employment or to substantiate credentials, a letter verifying completion of educational requirements may be obtained from the Department Chair or Program Director.

Alumni Association

The Alumni Association of UT Southwestern School of Health Professions was organized in 1994. The objectives of the Alumni Association are to promote and support education (including continuing education and lifelong learning) of health professionals. All graduates of the School become members of the Alumni Association upon completion of all academic requirements for graduation.

Online Catalog Southwestern Medical School:
https://www.utsouthwestern.edu/education/utsw-catalog/medical/

Contains:

School Description
Medical Faculty
Accreditation
School Academic Administration
Facilities and Services
Affiliated Health Care Institutions

Student Information

- Admission to the Medical Curriculum
- Application Procedure
- Academic Prerequisites
- Evaluation of Applicants
- Medical College Admission Test
- Essential Functions
- Appropriate Treatment of Students
- Promotion, Probation, and Dismissal
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- Background Check
- Policy Against Discrimination
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- Transfers From Other Medical Schools
- Advanced Standing

Tuition and Fees

- Tuition
- Designated Tuition
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- Graduation Fee
- Health Insurance
- Disability Insurance
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- Laboratory Fee
- Late Registration Fee
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Financial Aid

Degree of Doctor of Medicine

- Curriculum
- Summer Opportunities
- Medical Studies in Other Schools
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- Academic Colleges
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Programs

- Medical Scientist Training Program (M.D./Ph.D.)
- M.D./M.P.H. Program
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Clinical and Research Fellowships

Public Education/Continuing Medical Education

Distance Learning

Departmental Faculty

- Anesthesiology and Pain Management
- Biochemistry
- Cardiovascular and Thoracic Surgery
- Cell Biology
- Clinical Sciences
- Dermatology
- Emergency Medicine
- Family and Community Medicine
- Immunology
- Internal Medicine
- Microbiology
- Molecular Biology

Molecular Genetics
Neurological Surgery
Neurology and Neurotherapeutics
Neuroscience
Obstetrics and Gynecology
Ophthalmology
Orthopaedic Surgery
Otolaryngology – Head and Neck Surgery
Pathology
Pediatrics
Pharmacology
Physical Medicine and Rehabilitation
Physiology
Plastic Surgery
Psychiatry
Radiation Oncology
Radiology
Surgery
Urology
Advanced Imaging Research Center
Center for Genetics of Host Defense
Eugene McDermott Center for Human Growth and Development
Harold C. Simmons Comprehensive Cancer Center

UT SOUTHWESTERN MEDICAL SCHOOL

Since 1974, UT Southwestern Medical School has enrolled more than 200 first-year students annually. Current class size annually is from 235 to 240 students. In addition to the approximately 950 students in the four-year undergraduate medical curriculum, more than 1,800 clinical residents and postdoctoral fellows receive training at the School and its affiliated hospitals each year.

The educational programs are conducted in attractive modern buildings on the campus and in the clinical facilities of the affiliated hospitals. The School is dedicated to the education of physicians who are thoroughly grounded in the scientific basis of modern medicine, who are inspired to maintain lifelong medical scholarship and who will care for patients in a responsible and compassionate manner. The faculty and staff are committed to serve society not only by educating future medical practitioners but also by contributing to future medical developments

through research. The majority of graduates eventually practice medicine, and the general curriculum is oriented toward this goal. Many graduates will combine the practice of medicine with careers in teaching and research. For students who wish to pursue careers in research, experience, 12-week Scholarly Activity, fourth-year electives, year-round research experience or formal training leading to combined M.D. and Ph.D. degrees.

Medical Faculty

The excellence of any educational institution is determined by the caliber of its faculty. The faculty at UT Southwestern Medical School has many distinguished members, including six who have won Nobel Prizes since 1985; 22 members of the National Academy of Sciences; 15 members of the American Academy of Arts and Sciences; and 16 members of the National Academy of Medicine.

Faculty members of the Medical School have reached positions of prominence in American and international medicine. Many of the more than 2,700 full-time faculty members have been elected to the presidencies of national or international professional societies, have chaired major national and international medical committees, have been members of study sections for the National Institutes of Health, or are editors or members of editorial boards of medical and scientific journals.

The number of UT Southwestern students placing at the top in national competitive examinations and earning residency positions in outstanding postgraduate programs demonstrates a high degree of teaching effectiveness.

• Accreditation

The University of Texas Southwestern Medical Center at Dallas is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, GA 30033-4097; telephone number 404-679-4501) to award master's (M.A./ M.S./M.P.T./M.P.A.S.), doctoral (Ph.D./D.P.T.) and medical professional (M.D.) degrees.

The University of Texas Southwestern Medical School is fully accredited by the Liaison Committee on Medical Education of the Association of American Medical Colleges and the American Medical Association.

MEDICAL SCHOOL ACADEMIC ADMINISTRATION

UT Southwestern Medical School is led by a team of accomplished physicians, educators, and administrators committed to maintaining a supportive atmosphere of healing, discovery, and learning. Led by Dwain Thiele, M.D., Interim Executive Vice President for Academic Affairs and Provost, Dean, UT Southwestern Medical School, UT Southwestern leaders bring a wide variety

of backgrounds and experiences to bear on directing one of the nation's top academic medical centers. Leadership across all levels – Schools, Departments, Divisions, Centers, Clinics, and Hospitals – share an ambitious mission: to push the frontiers of medicine while bringing the latest advances to patient care.

http://www.utsouthwestern.edu/education/medical-school/about-the-school/administration.html

FACILITIES AND SERVICES

Most facilities and services are described within the "General Information" site. Medical students should also be aware of:

The Office of Medical Education provides academic support for the Medical School. OME professionals collaborate with faculty to design and develop curricula, courses and instructional materials; incorporate interactive learning techniques; and integrate technology into the curriculum. The Medical School has planned for curricular reform since 2013 and implemented a new curriculum with the matriculation of the Class of 2019, who arrived in August 2015. This class has completed the Pre-Clinical phase of education and entered the Clerkship phase in January 2017. The final phase of education, Post-Clerkship, will begin in July 2018, with anticipated graduation for members of the Class of 2019 at Commencement in May.

http://www.utsouthwestern.edu/education/medical-school/academics/curriculum/index.html

AFFILIATED HEALTH CARE INSTITUTIONS

The clinical faculty at UT Southwestern offers patient care at a number of affiliated hospitals and clinics in Dallas and Fort Worth, including UT Southwestern University Hospitals & Clinics.

UT Southwestern Medical Center has two hospital facilities – William P. Clements Jr. University Hospital and Zale Lipshy University Hospital – that offer patients superior care and outstanding service provided by a highly trained staff. The hospitals are a crucial component of UT Southwestern's ongoing development as an academic medical center that delivers world-class patient care, while supporting clinical and translational research, as well as education and training, making the University Hospitals sites that both reflect and integrate the Medical Center's three core missions.

Clements University Hospital – an $800 million state-of-the-art clinical facility – opened in late 2014. The 12-floor, 460-bed hospital is named in honor of the legendary Texas governor, in recognition of his 2009 gift of $100 million, which he made with only the stipulation that it be used for a transformative purpose related to UT Southwestern's mission. Clements University

Hospital offers patients and medical personnel world-class facilities and technologies. The facility offers practices in cardiology, emergency medicine, general internal medicine and subspecialties, general surgery, vascular surgery, oncologic surgery as well as hematologic malignancies, obstetrics and gynecology, and orthopedics. It also houses all of the solid organ Transplant Programs, as well as a Level III neonatal intensive care unit. Because of increasing demand for service and a goal to unite hospital services at a single site, construction of an additional hospital tower with 256 beds began in September 2017 and will be completed in approximately two years.

Zale Lipshy University Hospital began a transition to become a nationally renowned freestanding neuroscience facility with the opening of Clements University Hospital. Its neuroangiography unit is a vitally important factor in the diagnosis and treatment of neurological disease, and physicians based at the 148-bed Zale Lipshy facility specialize in diagnosing and treating patients with neurovascular diseases, stroke, Parkinson's and other neurologic diseases, as well as neurologic malignancies. Other specialties at Zale Lipshy include spine, psychiatry, and rehabilitation.

In Fort Worth, UT Southwestern provides care through the **Moncrief Cancer Institute** and a branch of the Simmons Cancer Center. In addition, UT Southwestern has established the **UT Southwestern Monty and Tex Moncrief Medical Center at Fort Worth**, made possible by a $25 million commitment from W.A. "Tex" Moncrief Jr. The new ambulatory facility, in the heart of Fort Worth's burgeoning medical district, opened in June 2017 and increases UT Southwestern's capacity to serve residents of Fort Worth and surrounding areas, improving access to UT Southwestern's medical care, research, and educational opportunities.

Outpatient services are offered in several clinical specialties throughout the campus. Community clinics in the Park Cities, Richardson, and Las Colinas also have opened, widening the access to UTSW primary care and specialty physicians.

Parkland Hospital, a component of Parkland Health & Hospital System operated by the Dallas County Hospital District, is a major teaching location for the Medical Center. More than half of the doctors practicing in Dallas County received some or all of their training at Parkland and UT Southwestern. Parkland's Level I Trauma Center and Burn Center are internationally recognized. The new Parkland, a $1.27 billion facility on the east side of Harry Hines Boulevard, opened in 2015 and is an 862-bed adult inpatient hospital that offers a variety of clinical services, ranging from outpatient clinics to an extremely active emergency service, providing an abundance of clinical situations for teaching purposes. Parkland is adjacent to the Medical Center's South Campus and connected by a bridge-walkway, providing for a free flow of students and staff between the two institutions.

Children's Medical Center, part of Children's Health System of Texas, is one of the largest pediatric health care providers in the nation. With nearly 50 specialty clinics and programs, Children's is the primary pediatric teaching hospital for the University. UT Southwestern pediatric faculty comprise the hospital's medical staff. Children's is the only pediatric hospital in the Southwest with a designated Level I trauma center.

Dallas Veterans Affairs Medical Center, a part of the VA North Texas Health Care System, is another valuable health care facility affiliated with the Medical Center. It is a general hospital with 544 beds and a full range of clinical facilities used by the Medical School's undergraduates and residents. These facilities include medical and surgical services in all major specialty areas. All training is under the direction of the Dean's Committee and is supervised by a large full-time staff augmented by consultants.

Southwestern Institute of Forensic Sciences is located at 2355 North Stemmons Freeway (I-35E) and serves as the base for teaching forensic medicine. It comprises the Dallas County Criminal Investigation Laboratory and the Office of the County Medical Examiner. It also interacts closely with the Transplant Services Center.

Methodist Hospitals of Dallas has several hospitals in the Dallas area. Methodist Dallas Medical Center, a 420-bed hospital, is the hub of the system, providing teaching connections with the Medical Center. Methodist Charlton Medical Center, which has 301 beds, offers a family medicine residency co-sponsored by the Medical School's Department of Family and Community Medicine.

John Peter Smith Hospital in Fort Worth, with 400 beds, is a component of the JPS Health Network and serves as a clinical site for the Family Medicine Clerkship.

UT Southwestern and Texas Health Resources have collaborated to develop **Southwestern Health Resources**, a clinically integrated health care network that leverages the strengths of the two largest local health care systems. The network builds on more than 50 years of collaborations between the two institutions and is comprised of 31 hospitals, an expansive network of physicians, and spans a 16-county service area with more than 7 million residents. The joint effort establishes an organization with the scale and scope to provide leading-edge technology, research, and education, ensuring broader access to exceptional, high quality care.

Texas Health Presbyterian Hospital Dallas, with 866 beds, is a teaching hospital of UT Southwestern. Several clinical services of Presbyterian Hospital are closely related to the corresponding departments of the Medical School through affiliated residency programs and rotations for medical students and physician assistant students. Several full-time faculty members are based there.

Texas Scottish Rite Hospital for Children, a charitable institution operated by the Scottish Rite Bodies of Texas, provides inpatient and outpatient care at no charge to children with orthopaedic or neurological challenges, as well as dyslexia and other learning disorders. UT Southwestern Medical School performs teaching and clinical services in several fields, including orthopedics, neurology, pediatrics, prosthetics-orthotics, anesthesiology, and radiology.

STUDENT INFORMATION

Admission to the Medical Curriculum

Admission to UT Southwestern Medical School is determined by the Admissions Committee. The chair of the Admissions Committee is appointed by the Dean of the Medical School. The Admissions Committee is composed of appointed and elected faculty members from both basic science and clinical departments.

• Application Procedure

Applications for admission to the first-year class beginning in August of any year must be submitted between May 1 and Oct. 1 preceding the year of desired entrance. Application to UT Southwestern requires submission of both the application to the Texas Medical and Dental Schools Application Service (TMDSAS) and submission of a secondary application through the UT Southwestern MyGateWay site, which may be found at:

http://www.tmdsas.com/medical/homepage.html

and

https://studentaffairs.swmed.org/mygateway/login.aspx.

• Academic Prerequisites

Obtaining a baccalaureate degree is strongly recommended for applicants to UT Southwestern; however, applicants may be admitted after completing 90 semester hours (exclusive of physical education requirements).

For applicants attending non-U.S. colleges and universities, it is recommended that undergraduate course work be completed at or credited through a regionally accredited U.S. or Canadian college or university. At least 45 semester hours, including all prerequisites, should have a grade assigned by a U.S. college or university.

It is the responsibility of the applicant to complete all prerequisites prior to matriculating into Medical School. Questions regarding prerequisites should be directed initially to the premedical adviser at the applicant's college or university and secondarily to the Texas

Medical and Dental Schools Application Service. If necessary, clarification should be obtained from the Admissions Office, with which final acceptance of courses for prerequisite credit rests.

The required course work is as follows:

English: One year of college English. A minimum of six semester credit hours is required with a grade of C or better. English courses must be approved by the English department for fulfillment of the general education English requirement for the baccalaureate degree. Remedial, developmental, and "English as a Second Language" courses are not accepted.

Biology: Two years as required for science majors. One year must include a formal laboratory experience. A minimum of 14 semester credit hours is required with grades of C or better, eight for year one with lab and six for the remainder, or 12 lecture hours and two lab hours. If two semesters of biochemistry are completed, one semester in biochemistry, as offered for science majors, will be accepted toward fulfilling one-half year of this biology requirement. Courses for non-science majors and courses taught for health-career majors (nursing, pharmacy or health professions sciences) are not accepted.

Physics: One year including laboratory as offered for science majors. A minimum of eight semester credit hours is required with grades of C or better. Any courses for non-science majors or health-career majors (nursing, pharmacy or health professions sciences) are not accepted.

Chemistry: One half-year of general (inorganic) chemistry including a corresponding laboratory experience for science majors, one year of organic chemistry for science majors including corresponding laboratory experience in both semesters, and one half year of biochemistry is required. A minimum of 15 semester credit hours is required with grades of C or better (four inorganic, eight organic, and three biochemistry). It should include experience in the laboratory and familiarity with analytic and volumetric techniques. Any courses for non-science majors or health-career majors (nursing, pharmacy or health professions sciences) are not accepted.

Mathematics: One-half year of college calculus or statistics. A minimum of three semester credit hours is required with a grade of C or better. The calculus course may be taught by the math or physics department. Business calculus and pre-calculus are not accepted. The statistics course must be math-based and preferably taught in the math department. Business statistics and statistics taught in social sciences or education departments are not accepted.

• Evaluation of Applicants

The Admissions Committee considers all of the following in evaluating each applicant's acceptability:

1) Academic performance in college as reflected in the undergraduate grade-point average;

2) The rigor of the undergraduate curriculum;

3) Scores from the Medical College Admission Test;

4) Recommendation letters from the college premedical committee or faculty;

5) Extracurricular activities;

6) Research experience;

7) Socioeconomic background;

8) Any time spent in outside employment;

9) Personal integrity and compassion for others;

10) The ability to communicate in English;

11) Race and/or ethnicity;

12) Other personal qualities and individual factors, such as leadership, self-appraisal, determination, social/family support and maturity/coping capabilities;

13) The applicant's motivation for a career in medicine, including prior health care exposure.

In addition, applicants are evaluated with regard to the mission of UT Southwestern Medical School, which emphasizes the importance of training primary-care physicians, educating doctors who will practice in medically underserved areas of Texas, and preparing physician-scientists who seek careers in academic medicine and research.

A personal interview is required and is initiated by invitation from the Admissions Committee. The committee invites applicants to interview who have excellent academic qualifications or who demonstrate convincing evidence of commitment to an area of medicine emphasized in the mission of the Medical School and who have academic backgrounds that indicate the potential for success in achieving the M.D. degree.

- **Medical College Admission Test**

Each applicant must take the Medical College Admission Test prepared by the American College Testing Program, and the test scores must be available before the Admissions Committee will take action on the application. MCAT scores are valid for five application

seasons immediately subsequent to the date taken. The MCAT must be taken in or before the year in which application is made. The test is offered multiple times between January and September each year at premedical college centers. The advantage of taking the test in the spring rests in the applicant's ability to retake it (if necessary) prior to the application deadline.

Registration for the MCAT can be accomplished at the website www.aamc.org.

• Essential Functions

All individuals, including people with disabilities, who apply for admission to UT Southwestern Medical School must be able to perform specific essential functions. Essential functions are the basic activities that a student must be able to perform to complete the generalist Medical School curriculum. No applicant who can perform the Medical School's essential functions – either with or without reasonable accommodations – will be denied consideration for admission. A candidate for the M.D. degree at UT Southwestern must be able to perform these essential functions:

Observation: Candidates must be able to accurately observe demonstrations and patients close up and at a distance to learn skills and to gather patient data (e.g., observe a patient's gait, appearance, posture, etc.). Candidates also must possess functional use of the sense of vision and somatic sensation. Observation is enhanced by the functional use of the sense of smell.

Communication: Candidates must be able to communicate orally and in writing with patients and members of the health care team. Candidates also must be able to read and comprehend written material.

Psychomotor Skills: Candidates must have sufficient motor function to obtain data from patients using tactile, auditory and visual maneuvers. Candidates must be able to execute motor movements to provide the general care and emergency treatment reasonably required of physicians.

Intellectual and Cognitive Abilities: Candidates must be able to measure, calculate, reason, analyze, synthesize, integrate and apply information. Problem solving, a clinical skill required of physicians, requires all these intellectual abilities. In addition, candidates must be able to comprehend three-dimensional relationships and to understand the spatial relationships of structures.

Behavioral and Social Attributes: Candidates must possess the emotional health required to use their intellectual abilities fully, such as exercising good judgment, promptly completing all responsibilities attendant to the diagnosis and care of patients, and developing

mature, sensitive and effective relationships with patients. Candidates must be able to tolerate physically taxing workloads and to function effectively under stress. They must be able to adapt to changing environments, to display flexibility, and to learn to function in the face of uncertainties and ambiguities inherent in the clinical problems of many patients. Compassion, integrity, concern for others, interpersonal skills, interest and motivation are personal qualities that should be assessed during the admissions and education process.

Ethical Standards: A candidate must demonstrate professional demeanor and behavior and must perform in an ethical manner in all dealings with peers, faculty, staff and patients. Candidates must treat all patients equally without regard to ethnicity, race, gender, religion or any other attribute. Questions of breach of ethical conduct will be referred to the Associate Deans for Student Affairs.

Appropriate Treatment of Students

The teacher-learner relationship must be based on a foundation of mutual respect. Respect, in this context, is reflected in honesty, professionalism and the prudent handling of the teacher's power over the student. Moreover, the teacher-learner relationship is defined and limited by the educational mission and learning objectives of the School. A teacher may be a faculty member, a resident, an intern, hospital staff or a fellow student.

Students who believe they have been mistreated have access to reasonable, fairly administered, and well-publicized policies and procedures for bringing a complaint and reaching a resolution. UT Southwestern employs various complaint and resolution procedures, depending on the substance and nature of the complaint. Students who believe they have been mistreated should contact the Associate Deans for Student Affairs within their particular School for guidance on the policies and procedures available for resolution, as well as available educational and support resources. Some complaints may be resolved informally, while others may require a more formal process. Student complaints about mistreatment in the teacher-learner relationship that are not covered by another UT Southwestern policy will be handled in accordance with the complaint resolution procedure in the Mistreatment of Students in Medicine Policy. The Mistreatment of Students in Medicine Policy is available from the Associate Deans of Student Affairs.

Promotion, Probation, and Dismissal

When a student completes the course requirements of an academic session satisfactorily, he or she is promoted to the next year's class provided there are no reasons that make the procedure unwise.

When an academic deficiency is incurred, the student is referred to a Student Promotions Committee, which is composed of representatives from each teaching Department of the School along with elected members. Its function is to review all important aspects of each student case referred to it and to make appropriate recommendations to the Dean.

The Committee, working within established guidelines, will determine a remediation plan, which may include repeating the work or the specific courses in which deficiencies exist or removal of the deficiency by whatever means the committee may propose. Serious or multiple deficiencies may result in dismissal.

Generally, a student who is required to remediate course or deficiencies not requiring the repeat of an academic year shall be placed on "academic warning" and remain as such until all coursework is successfully remediated. Any failure during the period of academic warning will automatically prohibit the student from progressing to the next academic year and will result in an upgrade of action as determined by the Student Promotions Committee.

A student who is required to remediate course or deficiencies requiring the repeat of an academic year shall be placed on "academic probation" and remain as such until successful completion of the entire repeated academic year. Any failure on probation will result in upgrade of action contingent upon immediate review by the Student Promotions Committee. The committee and the academic departments concerned may require the student to retake courses previously completed with a passing grade.

In situations where a student satisfactorily completes courses previously taken, the transcript will record both grades. If a graded clerkship was completed with a passing grade on both attempts, the final grade will be the average of the two recorded grades. In the case of Medical School pre-clerkship grades with Pass/Fail status, the grade from the first attempt was a ***Fail*** and the course was completed with a passing grade on the second attempt, the final grade will be a ***Pass.***

Appeals

A student may appeal an academic decision of the Student Promotions Committee by submitting a written appeal to its Chair within 10 business days of the student's receipt of the notification of the Student Promotions Committee decision. The student's written appeal should contain the facts on which the appeal is based and any supporting documentation, the reason(s) the student believes the decision by the Student Promotions Committee should be changed, and the remedy sought.

The Chair will review the student's written appeal and determine if the Committee has discretion pursuant to the Student Promotions Committee Guidelines to reconsider and impose a lesser remedial action. If it is determined that the Committee can reconsider its previous decision, the Student Promotions Committee will review the written appeal and meet with the student to discuss the appeal. The Committee will forward a written decision to the student within 10 business days after receiving the appeal. If the student is not satisfied with the Student Promotions Committee's decision, the student may appeal in writing to the School's Dean within 10 business days after receipt of the Student Promotions Committee's decision. The Chair of the Student Promotions Committee will submit to the Dean all materials relevant to the appeal that were considered by the Committee.

The Dean of the School shall have the discretion either to determine the appeal personally or to appoint an ad hoc Committee or designee to consider the appeal and to make a recommendation to the Dean.

If the Dean personally considers the appeal, he will review the written appeal and may meet with the student to discuss the appeal. The Dean will forward a written decision to the student within 10 business days after receiving the appeal.

If the Dean appoints an ad hoc Committee or a designee, the Committee or designee will review the written appeal and may meet with the student to discuss the appeal. The ad hoc Committee or designee will forward a written recommendation to the Dean within 10 business days after receiving the appeal. The Dean will consider the ad hoc Committee's or the designee's written recommendation and will forward a written decision to the student within 10 business days after receiving the recommendation.

The decision of the Dean is final.

For prospective Medical School students, the "General Information" site of the catalog contains additional onboarding information, including:

Background Check
Policy Against Discrimination
Residency Defined
Active Military Service
Required Immunizations
AIDS, HIV and Hepatitis B Virus Policy
Bacterial Meningitis Policy

• Transfers From Other Medical Schools

If positions are available, transfer is permitted for students in good standing at a medical school accredited by the Liaison Committee on Medical Education. Transfer is most easily accommodated at the beginning of the Clerkship phase. Transfer into the fourth year is not possible. Typically, the availability of positions in the Clerkship phase will be known in the late fall of the second year.

Applications and information can be obtained from the Admissions Office. Applications for transfer will be considered by the Admissions Committee of the Medical School.

• Advanced Standing

UT Southwestern does not have an advanced standing program. Admission can be granted only through the usual process to the first-year class. Upon admission, a student is permitted to petition individual Departments if exemption from that course is desired. There is no formal process for this, and decisions are totally at the discretion of each Department.

TUITION AND FEES

All fees are subject to change without prior publication and become effective when enacted. The Texas Legislature does not set the specific amount for any particular student fee. The following student fees are authorized by the state statute; however, the specific fee amounts and the determination to increase fees are made by the University administration and The University of Texas System Board of Regents.

Tuition

Information concerning the current cost of a medical education at UT Southwestern can be viewed at:

http://www.utsouthwestern.edu/education/medical-school/admissions/costs-tuition-and-aid.html

Tuition for nonresidents is three times the resident tuition rate. Texas statutes also provide that a nonresident student is permitted to pay the same tuition and fees as a Texas resident if the student holds a competitive scholarship worth at least $1,000 per year.

Students in doubt about their residency status for tuition purposes should consult the Residency Defined section in the “General Information” portion of the catalog.

The “General Information” site also describes the various fees and insurances needed by students at UT Southwestern. Contained within Student Information, these references include: Designated Tuition; Tuition Installment Payments; Computer Usage and Technology Fees; Graduation Fee; Health Insurance; Disability Insurance; Incidental Fees; Laboratory Fee; Late Registration Fee; Malpractice Insurance Fee; Medical Services Fee; Returned Check Fee; Student Services Fee; Books and Equipment; Parking; Microscopes; and Student Housing.

Financial Aid

The “General Information” section of the catalog addresses the process of applying for and receiving financial aid. Information also can be viewed at:

http://www.utsouthwestern.edu/about-us/administrative-offices/financial-aid/index.html

Degree of Doctor of Medicine

The degree of Doctor of Medicine is granted by UT Southwestern Medical School upon satisfactory completion of the instructional courses and licensing detailed in this catalog. The completion of these courses is ordinarily accomplished in four academic years ranging in length from 38 to 48 weeks each.

Candidates must 1) be at least 21 years of age at the time the degree is awarded, 2) be of good moral character, 3) fulfill all academic requirements, and 4) comply with all necessary legal and financial requirements.

Curriculum

UT Southwestern Medical School has a four-year curriculum based on departmental as well as interdisciplinary teaching. The first 18 months offer the student an opportunity to develop a strong background in the basic sciences and to receive an introduction to clinical medicine.

The first-year curriculum begins with a study of the normal human body and its processes at the molecular and cellular levels. Material is integrated into three parallel tracks during the first six months: Fundamentals of Biomedical Sciences, Body Structures Foundations, and Academic Colleges. Topics such as molecular biology, biochemistry, genetics, cell biology and cellular basis of physiology, neuroscience, neoplasia, principles of pathology, pharmacology, and microbiology, as well as fundamentals of immunology and host responses (inflammation) are integrated into the courses Human Structure, Microanatomy, Macromolecules, Cells, Tissues, Genetics, and Organisms and Host. Clinical correlations are included. For example, Human Anatomy integrates radiological anatomy into the course by correlating traditional anatomic studies with images. During the entire Pre-Clerkship phase of education, courses build concepts necessary for clinical medicine. These principles and concepts are reintroduced later through interdisciplinary courses to explain disease processes.

The Academic Colleges are small learning communities that bring together gifted faculty members with small groups of students (typically six) so the students can observe and mirror the professional clinical skills, behaviors, and attitudes of a highly experienced physician. Academic Colleges meet weekly during the Pre-Clinical phase of education and then continue monthly once the Clerkship phase begins. More details are available in the course descriptions below.

The next 12 months consist of Integrated Medicine courses organized by the body's many organ systems: hematopoietic; cardiovascular; pulmonary; gastrointestinal, liver, and nutrition; renal and genitourinary; endocrinology, reproduction, and metabolism; musculoskeletal and skin. During this phase the student has an opportunity to begin a study of disease processes and the manner in which physicians approach those processes therapeutically. The goal of these courses is to provide the core principles from each of the major disciplines needed to practice clinical medicine.

Strive: Personal and Professional Development for Careers in Medicine is a Pre-Clerkship required seminar course focused on professionalism, career development, cultural competency, leadership, wellness, and financial literacy.

Fundamentals of Clinical Reasoning is a longitudinal course offered throughout the Integrated Medicine blocks to focus on teaching principles of evidence-based medicine, clinical reasoning, and quality improvement. The Pre-Clerkship phase ends with the Transitions to Clerkships course. Certification in advanced cardiac life support is also presented during this time and is a requirement for graduation.

Clinical experiences begin early in the first six months where students are taught communication skills, history-taking and the physical exam in Colleges with their mentors. Contact with patients begins early with history taking, physical examination, and visits to the hospital wards and various outpatient clinics occurring repeatedly during College sessions. Students usually will take the U.S. Medical Licensing Examination Step 1 at the conclusion of the Pre-Clerkship phase of their education. The new curriculum includes dedicated time to prepare for the exam. The details of the USMLE Step 1, as it pertains to meeting academic requirements, are discussed later in this section of the catalog.

The third and fourth years offer intense clinical experiences involving the student in direct patient care. The Clerkship phase lasts 18 months and requires rotations in core clerkships including eight weeks each in surgery and internal medicine, six weeks each in ambulatory medicine, pediatrics, psychiatry and obstetrics and gynecology, four weeks each in family medicine and neurology. During this phase students are also required to perform 12-weeks of Scholarly Activity. Scholarly Activity projects may be performed in Basic Research, Clinical and Translational Research, Quality Improvement and Patient Safety, Community Health, Global Health, and Medical Education. As mentioned, students will have six weeks dedicated to preparing for Step 1 exams. This leaves sufficient time for students to structure electives to develop a unique pathway designed to reach each of their career goals.

The current fourth year consists of two four-week clinical subinternships (now called Selectives) and a minimum of three four-week electives chosen from an extensive list of options to fulfill the remaining course requirements. The Post-Clerkship phase includes the new courses – Frontiers in Medicine; Physicians and Society; and Transitions in Clinical Training – all designed to prepare the student for graduate medical education and practice. Students may choose among seven subsections of Frontiers in Medicine depending on their interests. These include Behavioral Health and Neuromedicine; Conception, Obstetrics, and Child Health; Emerging Infectious Diseases and the Microbiome; Healthy Aging; Neoplasia and Neoplastic Disease; Regenerative and Restorative Medicine; and Resuscitation Medicine.

The curriculum is dynamic and responds to the changing requirements of medical education. Faculty and students review the curriculum regularly, and changes are introduced almost every year. For an updated list of courses and credits, students should contact the Office of Enrollment Services.

Summer Opportunities

Students have a 10-week summer break at the end of their first year. For those who wish, this time can be used for research experiences or for sponsored clinical exposure in a variety of specialties. Student research opportunities abound among the faculty in both basic and clinical departments. The results are presented at a University-wide forum in the spring semester. Community preceptorships are offered in internal medicine, family medicine, pediatrics, and psychiatry, and also are available in more specialized settings such as anesthesia.

Medical Studies in Other Schools

Students are permitted to pursue some parts of their studies at other medical schools in the form of senior-year courses. Approval must be obtained from the equivalent UT Southwestern Department in which the course is based and then from an associate dean for student affairs. The following conditions must be met: 1) that the student enroll and pay fees at UT Southwestern Medical School and 2) that proof of satisfactory completion of studies in the institution is submitted to the UT Southwestern Office of Enrollment Services.

Visiting Students

UT Southwestern's capacity to accommodate students from other institutions who wish to undertake an elective rotation is very limited. UT Southwestern cannot reserve positions in advance for any students other than those enrolled in UT Southwestern's M.D. degree program. The burden placed on UT Southwestern's faculty in providing adequate supervision to UT Southwestern students leaves scant room even for students from schools accredited by the Liaison Committee on Medical Education, with whom UT Southwestern reciprocates on exchanging students for elective rotations. In the unlikely event that UT Southwestern has excess capacity on its clinical teaching services for well-trained elective students from non-LCME-accredited medical schools, UT Southwestern will consider an application from those students.

Core clerkships in the second and third year and courses provided in the Pre-Clerkship period are available only to students enrolled at UT Southwestern. Approval of visiting students rests with the appropriate clinical Department. All students must be covered by malpractice insurance. Information concerning electives may be obtained from the Office of Enrollment Services or from the appropriate clinical Department.

Calendar

The calendar for UT Southwestern Medical School varies in detail from year to year. First- and second-year classes begin in early August and the first-year courses are completed in May. The various clinical disciplines are in session throughout the calendar year starting with the Clerkship phase. Graduation is held in early May. There is a winter break as well as a spring break for all classes, with the exception of spring break in the fourth year.

Curriculum

Pre-Clerkship Phase

Course		**Credits**
Academic Colleges		3.0
Strive: Personal and Professional Development for Careers in Medicine		0.5
Body Structure Foundations		
Human Structure		2.5
Microanatomy	3.5	
Fundamentals of Biomedical Sciences		
Macromolecules		0.5
Cells		1.0
Tissues		1.0
Genetics		1.0
Organisms and Host Responses		2.5
Integrated Medicine		
Musculoskeletal and Skin		2.0
Hematopoietic		2.0
Cardiovascular		2.0

Pulmonary	2.0
Renal and Genitourinary	2.0
Gastrointestinal System and Nutrition	2.5
Endocrinology, Energy Homeostasis, and Reproductive Health	2.0
Brain and Behavior	3.0
Foundations of Clinical Reasoning	1.0
Transitions to Clerkship	0.5

Academic Colleges

Academic Colleges are six, small learning communities that bring together gifted faculty members with small groups of students (typically six) to observe and practice the professional clinical skills, behaviors, and attitudes of a highly experienced physician. During the Pre-Clerkship period, each College group meets once a week: three of the six Colleges meet on one day and the remaining three Colleges meet on another day. Thereafter, Colleges groups meet monthly. Topics are often linked to the basic and clinical science material being simultaneously learned, and include medical history and physical exam, medical ethics, case-based learning, medical professionalism, communication skills, clinical reasoning, and interprofessionalism.

• **Human Structure**

This integrated course of anatomy, embryology, and radiological imaging presents the development, structure, and function of the healthy human body as it relates to the practice of medicine. By using various approaches, a three-dimensional understanding of structural relationships in the living body is acquired. Students, working in groups of six, dissect major body structures in the cadaver laboratory. Complete skeletons, individual bones, skulls, prosections and other demonstration specimens amplify and clarify adult anatomy. The basics of medical imaging techniques are introduced, including plain film, CT, and MR. These images enhance understanding of bony structures, individual thoracic and abdominopelvic viscera, and the three-dimensional relationships between these viscera. Knowledge of the embryonic

development of the human body facilitates the understanding of organ structures and anatomical relationships in the adult body. The basics of early embryonic development are addressed and the anatomy of the various organ systems is related to their embryology.

• **Microanatomy**

The Microanatomy course introduces the fine structures and functions of the cells and tissues of the human body as observed at both light and electron microscopy resolution. Emphasis is placed on structure-function relationships between different cell types, as well as foundational discussions on how alterations in cell architecture and cell behavior lead to disease. The course consists of lectures, video presentations, and coordinated laboratory instruction.

• **Macromolecules**

The Macromolecules course introduces the fundamentals of modern biochemistry and molecular biology from the perspective of macromolecules. Topics include the fundamentals of protein structure, ligand binding and enzyme kinetics, basic DNA and RNA structure and function, DNA replication and repair, transcriptional regulation, mRNA processing, and translation. Throughout, the emphasis is on aspects of biochemistry and molecular biology relevant to medical practice.

• **Cells**

The Cells course introduces the basic principles by which cells function and interact. Topics include bioenergetics, cytoskeleton, proliferation, membrane trafficking, signaling, and motility. Emphasis is placed on the relationships between the structures and functions of cells and how dysfunction in these relationships leads to human disease.

• **Tissues**

As the building blocks of biology transition from molecules, genetics, and cells, tissues become the next primary focus. In this course topics are explored on how cells organize, coalesce, and provide critical infrastructure for the human body. After understanding the fundamentals of human tissues, topics transition into how these functions go awry, and how such pathologic conditions underlie human disease. This knowledge provides a foundational understanding for the medical issues experienced by the body as a whole.

• **Genetics**

This course addresses the fundamentals of medical genetics with a focus on the genetic technologies and concepts utilized to diagnose, manage, and treat patients with genetic disorders. The course is taught primarily in a Group Problem-based format with additional

interspersed didactic lectures. Topics covered include the major types of genetic disorders (including chromosomal, Mendelian, and complex multigenic disorders, as well as single gene disorders with atypical inheritance patterns), genetic testing and diagnosis (including indications for testing and technologies), basic concepts of population genetics, calculating genetic risk and recurrence risk prediction, cancer genetics (including inherited and sporadic forms), genetic screening and test parameters, types of genetic services, and medical ethics.

- **Organisms and Host Responses**

Principles of microbiology, immunology, and pharmacology are introduced and integrated in this course. Topics include basic virology, bacteriology, mycology, and parasitology (microbiology); innate and adaptive immune function, immunodeficiencies, and autoimmunity (immunology); pharmacodynamics, pharmacokinetics, toxicology, and principles of antimicrobial mechanisms (pharmacology). An overview of autonomic physiology and pharmacology provides perspectives on host responses related to organs systems. Microbiology topics are closely aligned with immunology and pharmacology to integrate principles of interactions between microbial organisms and the human immune system. Pathologic correlates and pharmacological treatments of inflammation are also presented.

- **Musculoskeletal and Skin**

This course focuses on normal and abnormal structure and function of musculoskeletal and skin tissues, encompassing the epidemiology and pathogenesis of common rheumatologic, orthopedic, muscle, and dermatologic diseases and injuries. Clinical manifestations, diagnosis, and treatment strategies, including medical and surgical management, are included. Emphasis is placed on evidence-based practices related to specific diseases, injuries, and preventative interventions.

- **Hematopoietic**

This course introduces bone marrow and blood cells. It begins with the normal hematopoiesis, leading into non-malignant disorders of the leukocytes and erythrocyte, followed by malignant disorders of the hematolymphoid system. The course finishes with discussions on hemostasis and thrombosis, including qualitative and quantitative disorders of the platelets. Content spans normal physiology, pathophysiology, and pathology, as well as microbiology. Clinical aspects of hematology are introduced in terms of drug therapy and evaluation of patients with commonly encountered hematological problems.

• **Cardiovascular**

The cardiovascular course provides a broad knowledge base about the cardiovascular system and involved diseases. It begins with an introduction to cardiac anatomy and physiology, followed by epidemiology of cardiovascular disease, and "tools" for physicians to use in the diagnosis of cardiac disease. Different forms of cardiovascular disease are then discussed linking normal physiology, pathology, pathophysiology, clinical medicine, and pharmacology in an integrated fashion for normal and abnormal development of the heart, the electrical system of the heart, the heart as a pump, the circulation of blood, and atherosclerosis as it affects the heart and blood vessels. Prevention of cardiovascular disease is addressed and case-based learning is used to emphasize the approach to patients with cardiovascular disease from birth to death.

• **Pulmonary**

This course introduces the respiratory system based on its structure and function, and how the two are related to the health and disease of the system. It begins with an overview of physiology and the mechanics of how humans breathe, as well of the principles of oxygenation and ventilation. A tour of the system begins with air entry into the human body to the end where gas exchange occurs at the alveoli. Diseases of the airway, lung parenchyma, and pulmonary vasculature are introduced in an integrated fashion from the perspectives of pathology, microbiology, pathophysiology, pharmacology, and clinical medicine. Extremes in pathophysiology requiring critical care are also discussed in a similar fashion. In case-based learning sessions, students learn how to navigate through these different disease states by applying the principles of physiology to the mechanisms of disease, and by learning how to integrate diagnostic modalities and imaging. Pharmacological and non-pharmacological intervention for the treatment, maintenance, and prevention of future disease culminates this process.

• **Renal and Genitourinary**

Renal and genitourinary disease is examined in relation to the function of kidneys, fluids and electrolytes, and the common derangements of renal physiology and disease manifestations. Clinical syndromes and pathology commonly encountered in patients presenting with urologic disorders also include diseases of the prostate, genitourinary tumors, voiding dysfunction, pediatric urologic syndromes, urinary tract infection, erectile dysfunction and nephrolithiasis.

• **Gastrointestinal System and Nutrition**

The science and medicine of nutrient acquisition and utilization is covered in relation to the normal mechanisms by which the gastrointestinal system processes and absorbs nutrients from the environment for use by the body, the diseases associated with the malfunction of those processes, and the clinical medicine by which those diseases are diagnosed and treated. Broader topics of nutrition including factors that determine the quality and quantity of nutrient intake and the effect that such factors have in health and disease are also addressed. Emerging topics such as the role of the gut microbiome in health and disease and the function of the gastrointestinal system for immune tolerance and surveillance are introduced.

• **Endocrinology, Energy Homeostasis, and Reproductive Health**

The fundamentals of hormone production, secretion, and mechanisms of action are differentiated from normal to abnormal with a focus on appropriate diagnoses and treatment of diseases. Endocrine and reproductive organs are presented individually to encompass all aspects of physiology, pathology, histology, malfunction, and treatment. However, diabetes and obesity are integrated in a multi-organ approach.

• **Brain and Behavior**

This interdisciplinary course examines normal structure and function of the nervous system and the broad spectrum of neurological and psychiatric diseases encountered in clinical practice. The unit begins with a discussion of the characteristics of the neuron and other cellular components of the nervous system, the nature of neuronal circuits and the concept of the mind, followed by a comprehensive presentation of the gross anatomy of the nervous system. Building on these fundamentals, the course then examines dynamic/functional domains of the normal nervous system – development, sensory and motor systems and cognition – and the disorders affecting these areas. Course material is presented via a combination of lectures, team-based learning activities, and small group conferences and laboratory sessions.

• **Foundations of Clinical Reasoning**

This is a longitudinal course during the Integrated Medicine blocks meant to forge connections between existing knowledge and skills with new, important lines of thought. In the Pre-Clerkship period, clinical reasoning skills through team-based learning and Colleges case-based learning sessions and clinical site visits is linked to courses in the Integrated Medicine blocks. In Foundations of Clinical Reasoning, a more holistic approach to patient care is presented through a symptom-based approach to diagnosis. Disciplines like epidemiology,

biostatistics, patient safety, quality improvement, and evidence-based medicine serve as effective tools to improve clinical reasoning skills.

• Transitions to Clerkship

Through a series of didactics, small group breakout discussions, team-based learning exercises, and hands-on skills training in the simulation center and Southwestern Center for Minimally Invasive Surgery (SCIMIS), knowledge and skills necessary to effectively transition to the clinical clerkships are developed. After a general orientation to roles and expectations on the clerkships, students work through exercises to develop skills in effective feedback, case presentations, clinical documentation in the electronic health record, inter-professional teamwork, and effective time management. This course includes training and certification in Advanced Cardiac Life Support. In addition, small groups are taught and assessed in various procedural skills including knot tying, suturing, sterile gown and gloving, and Foley catheter placement. Necessary credentialing and training modules required by our affiliated hospitals are also completed. Competency in each of the required skills must be demonstrated.

• Advanced Cardiac Life Support

ACLS includes didactic information about the management of cardiac arrest, including rhythm recognition, drugs and protocols. Students practice skills for airway management, including intubation; management of bradycardia, tachycardias, ventricular fibrillation, asystole, pulseless electrical activity, and shock and heart failure; and use of defibrillators and automated external defibrillators. Students must master techniques for basic life support for health professionals, such as one- and two-rescuer cardiopulmonary resuscitation, infant CPR, child CPR, and management of obstructed airway for all ages, before practicing skills for advanced techniques. Examinations include a written examination and demonstration of proper technique for intubation and ability to serve as team captain for a cardiac-arrest scenario. The student must pass each section for certification.

• USMLE Step 1

UT Southwestern medical students are counseled to take the U.S. Medical Licensing Examination Step 1 at the end of their six-week Step 1 Preparation Course, which may be taken during the first semester of the Clerkship phase of their education. This course includes advice and support regarding study planning, weekly check-ins to ensure progress, and tutoring support if needed. Students must obtain a passing score on the USMLE Step 1 to progress in the curriculum.

Core Clerkships

Clerkships/courses	**Credits**
Ambulatory Medicine	6.0
Family Medicine	4.0
Internal Medicine	8.0
Neurology	4.0
Obstetrics and Gynecology	6.0
Pediatrics	6.0
Psychiatry	6.0
Surgery	8.0
Scholarly Activity	12.0

• **Ambulatory Medicine Clerkship**

The core clerkship in Ambulatory Care consists of four weeks of adult and two weeks of pediatric outpatient rotations designed to prepare student to expose students to preventive medicine and management of chronic diseases across the age spectrum in a longitudinal outpatient care setting. Students will learn to gather a problem-focused history and exam, to recognize acute exacerbation of chronic illness, generate a differential diagnosis for an acute illness, and to promote concepts of wellness and disease prevention. The preceptorship structure is also designed to teach students to build patient-doctor relationships, to foster professionalism, and to introduce students to ambulatory medicine office structure and clinical operations.

• **Family Medicine Clerkship**

The third-year clerkship in family medicine exposes students to primary-care role models and ambulatory clinical experiences in contemporary health care delivery away from the tertiary-care setting. This four-week clerkship has both didactic and clinical portions.

For the clinical portion of the clerkship, students may be based at clinics affiliated with UT Southwestern, surrounding family medicine residency programs, or private practitioner offices. The residency sites include Charlton Methodist Hospital (Dallas); McLennan County

Family Practice Center (Waco); UT Southwestern-Parkland Family Medicine Residency Program (Dallas); UT Southwestern-Southwest Health Resources (Dallas); John Peter Smith Hospital (Fort Worth); and UT Health Northeast (Tyler). Most private-practice office sites are in the DFW-metroplex communities, such as Plano, Mansfield, and Forth Worth, with one rural site in Olney and one site in Austin. Each of these sites is staffed by adjunct clinical faculty.

The didactic portion of the clerkship consists of lectures and small-group activities that focus on clinical topics and patient and family issues commonly encountered in a family medicine environment. Clerks prepare and present a patient study to faculty at each site and participate in conferences.

• Internal Medicine Clerkship

The internal medicine clerkship consists of eight weeks of general medicine inpatient medicine. Each student spends four weeks at Parkland Memorial Hospital and four weeks at an affiliate institution. The student is assigned patients under the supervision of house staff and attending physicians. The clinical clerk is responsible for written admission work-ups, progress notes and oral presentations, as well as participation in the ongoing care of patients.

The objectives of the clerkship are to develop proficiency in approaching the diagnosis and therapy of serious medical illness, to foster an appreciation of disease as the expression of deranged physiology, to inculcate habits of critical inquiry and self-education, and to enhance an appreciation of the physician's responsibility to the patient.

Teaching is carried out on rounds with house staff and attending physicians and at conferences and lectures specifically organized for the clerks. Each student must undertake a systematic program of daily reading in standard texts and journals. Attendance at departmental events such as Grand Rounds, Clinical-Pathological Conference, the case presentations at noontime Potpourri and Residents' Conference completes this educational experience.

• Neurology Clerkship

A comprehensive and intensive neurology clerkship offers instruction in the diagnosis and management of neurologically ill patients. The students participate actively in the evaluation and care of inpatients on neurology services at Parkland Memorial Hospital, Dallas VA Medical Center and Children's Medical Center Dallas. Clinical conferences, tutorial seminars and didactic teaching sessions are important parts of the clerkship. The clerkship prepares the student to evaluate neurological disease and to apply knowledge of anatomy, physiology and pathology to the formulation of an appropriate differential diagnosis.

• Obstetrics and Gynecology Clerkship

Each third-year medical student spends six weeks on the obstetrics and gynecology service. The time is evenly divided between obstetrics and gynecology. Students are divided into small groups, and their clinical activities are supervised by house staff and faculty.

During obstetrics, students rotate through postpartum and antepartum care of medical complications of pregnancy. Students also provide care in the labor and delivery area and the triage area of Parkland and the prenatal clinic at Maple Plaza. Under supervision of house staff or certified nurse midwives, students deliver babies of uncomplicated pregnancies. Students also assist in the management of complicated pregnancies during the labor and delivery process and follow patients postpartum.

During gynecology, the students are divided into small groups and rotate through gynecology clinic and surgeries at Parkland and other hospitals. One afternoon is spent in the UT Southwestern Center for Minimally Invasive Surgery learning laparoscopic techniques.

In addition to ward and clinical activities, each student spends four to five hours each week in formal conferences with faculty. These conferences are devoted to discussion of patients or clarification of information that the student has encountered elsewhere. Faculty members give lectures on the principles of obstetrics and basic gynecology.

• Pediatrics Clerkship

The six-week pediatric rotation is divided into four weeks on the inpatient service at Children's Medical Center Dallas, one week in the Emergency Department, and one week in the newborn nursery at Parkland Memorial Hospital.

Inpatient Service: During the four-week inpatient rotation, students are placed on one of the general pediatric inpatient clinical services at Children's for two weeks and on one of the four subspecialty services for two weeks. Students are part of the clinical management team under the supervision of a full-time faculty attending physician and an upper-level pediatric resident. The number of patients each student follows is determined by his or her individual educational requirements. Each student is expected to take initial histories, perform initial physical exams, write daily progress notes on his or her assigned patients and be prepared to present them on daily rounds.

Students spend one week in the Emergency Department, including a late night and weekend ED shift, and one week in the newborn nursery at Parkland. During the newborn nursery week, students examine healthy newborns and may attend complicated deliveries.

The course in pediatrics is designed to emphasize normal growth and development and the impact of disease and its treatment on the developing child. Additionally, the prevention of disease and injury, along with the role of the physician as child advocate, is stressed.

• Psychiatry Clerkship

An intensive six-week rotation in psychiatry actively involves the student in a variety of psychiatric services. Students are assigned to two three-week sites for their primary clerkship experiences. These sites include inpatient psychiatry, consultation/liaison psychiatry, community health care and emergency psychiatry in a variety of hospital settings, including Parkland, UT Southwestern University Hospitals, Dallas VA Medical Center, Children's, and Texas Health Presbyterian. These primary clerkship experiences are supplemented by mentored sessions in outpatient psychiatry and emergency psychiatry. Students also are able to see clinical care unique to psychiatry, such as electroconvulsive therapy.

In addition to diverse clinical exposure, students also spend one half-day a week in didactic teaching sessions focusing on the diagnosis and biopsychosocial treatment of psychiatric disorders. Students attend weekly departmental Grand Rounds and participate in teaching conferences on their primary service site.

• Surgery Clerkship

The junior surgical clerkship introduces students to the theoretical and practical aspects of surgical patient care. Emphasis is placed on the underlying pathophysiology rather than technical aspects. Students are fully involved in the daily care of surgical patients and participate in diagnostic and therapeutic decision-making. This eight-week experience also includes didactic teaching sessions, small-group interactions with full-time faculty and skills lab training.

Scholarly Activity

Scholarly Activity projects in Basic Research, Clinical and Translational Research, Quality Improvement and Patient Safety, Community Health, Global Health, and Medical Education. Projects are performed under the direct supervision of a research mentor.

• USMLE Step 2

Students take the U.S. Medical Licensing Examination Step 2 - Clinical Knowledge and Step 2 - Clinical Skills after completion of the core clerkships in the third year. Passing scores on USMLE Step 1, Step 2 – CK, and Step 2 – CS are required for graduation.

Post-Clerkship Phase

Electives & Selectives	Credits
Two Selectives	4.0
Three Electives	6.0
Frontiers in Medicine	2.0
Physicians in Society	2.0
Transitions to Clinical Care	2.0

- **Selectives**

These four-week clinical rotations require students to act as a rigorous sub intern on an inpatient service in a medical discipline in internal medicine, pediatrics, psychiatry, neurology, obstetrics and gynecology, or surgery including subspecialties in each of these areas. Students are expected to interview patients and obtain vital information for patient care, interpret data and discuss the treatment plan with the patient and family, promote general health maintenance and disease prevention, and consult with specialty services to coordinate care. Students should be able to provide the differential diagnosis of a chief complaint and a treatment plan to investigate the cause. Students also are expected to apply current clinical knowledge to arrive at a diagnosis with the health care team. Students should be able to assimilate scientific evidence to improve patient care and be able to communicate effectively with the health care team, patients and patients' families. There is special emphasis on skills needed for internship, such as cross-over, transitions of care, writing discharge summaries, conducting family meetings and breaking bad news.

- **Electives**

The elective program has a twofold purpose: 1) to aid the student in a career choice and 2) to offer an opportunity to build strengths in related fields should a career choice have been made by the senior year. Five or more months of the fourth year of Medical School are available for electives.

Students may take electives off campus if approved by the Chair of the relevant Medical School Department and then by an Associate Dean for Student Affairs. Some students may choose to spend their elective time on a research project.

A listing of elective offerings is provided on the learning management system and updated annually. Included are electives in the major clinical disciplines and in the medical and surgical subspecialties. Occasionally a student may, with faculty approval, design an elective to meet a special need. Selection of electives is guided by individual counseling from faculty when needed.

More than 100 elective courses are offered by many Departments, including Anesthesiology and Pain Management, Cardiovascular and Thoracic Surgery, Clinical Sciences, Dermatology, Family and Community Medicine, Internal Medicine, Neurology, Neurological Surgery, Obstetrics and Gynecology, Ophthalmology, Orthopaedic Surgery, Otolaryngology - Head and Neck Surgery, Pathology, Pediatrics, Pharmacology, Physical Medicine and Rehabilitation, Plastic Surgery, Psychiatry, Radiology, Surgery, and Urology.

In addition to the classic four-week electives usually taken in the Post-Clerkship phase, students have an opportunity to take two-week exploratory electives and depending on their chosen clerkship pathway, they may take early four-week electives if they meet prerequisites. This opportunity in the new curriculum allows students flexibility in choosing and preparing for a specific a career path.

PROGRAMS

MEDICAL SCIENTIST TRAINING PROGRAM

The Medical Scientist Training Program (MSTP) at UT Southwestern integrates medical and research training for qualified women and men at the graduate level leading to both M.D. and Ph.D. degrees. The goal of the Program is to prepare individuals as physician-scientists. Graduates of this Program typically pursue careers in academic medicine and biomedical research at the nation's leading institutions.

This Program offers students an integrated curriculum in the scholarly setting of UT Southwestern Medical School and UT Southwestern Graduate School of Biomedical Sciences. The MSTP curriculum is flexible and individualized to suit the background and interest of each medical scientist fellow. The Program is designed to be completed in approximately seven to eight years. Additional time is allotted if needed to meet requirements for the Ph.D. degree.

- **Prerequisites**

A baccalaureate degree is required, and significant experience in laboratory research is essential for admission. It is desirable, but not mandatory, that the minimum prerequisites for admission to UT Southwestern Medical School be supplemented by one year of college calculus and one year of physical chemistry. Potential applicants who have not had prior experience in a

research laboratory should gain such experience before considering a career in academic medicine and medical research. For Medical School students, it is possible to acquire the necessary research experience after entering and to apply to the MSTP during the first or second year of Medical School.

• Medical Scientist Fellowships

The Medical Scientist Training Program is the recipient of a training grant from the National Institute of General Medical Sciences of the National Institutes of Health. Support for the Program also is provided by other sources. Students accepted into the Program receive stipend support and full funding for tuition and fees.

There is no priority assigned to an applicant's state of residency. MSTP fellows come from all over the United States, and a limited number of positions with full support are available to international applicants.

• Organization of the Program

Through the course of the Program, M.D./Ph.D. fellows are enrolled in UT Southwestern Medical School or UT Southwestern Graduate School. Students who complete the MSTP will have met all requirements for the Ph.D. degree in the Graduate School and for the M.D. degree in the Medical School. The Ph.D. may be earned in one of the basic science graduate training programs within the Division of Basic Sciences. Program faculty are derived from both basic science and clinical departments of the Medical School.

The MSTP affords the student flexibility in the selection and scheduling of courses. A typical schedule would include the first two years of Medical School with summer laboratory rotations prior to and following the first year and again following the second year. The summer laboratory rotations are research apprenticeships to aid the student in selecting a research area and a mentor for research training. These apprenticeships are established by discussion with each student, the MSTP committee and the potential preceptor. They are intended to expose the student to a variety of excellent laboratories in his or her area of interest.

• Application Procedure

The process for admission to the MSTP can be viewed at www.utsouthwestern.edu/mstp . Application to the MSTP is made via the American Medical College Application Service. Concurrent application to the Medical School alone is permissible via the Texas Medical and Dental Schools Application Service.

M.D./M.P.H. PROGRAM

UT Southwestern Medical School and UT Health-School of Public Health offer students interested in medicine and public health an opportunity to be awarded a degree in each field at the end of a four-year program. Students complete all coursework for both degrees on the UT Southwestern campus and receive the M.D. degree from UT Southwestern and the Master of Public Health from UT Health-School of Public Health. The activities leading to the M.D. degree are described earlier in this chapter. Curriculum and course descriptions for the M.P.H. are available from the Office of Enrollment Services, The University of Texas Health Science Center at Houston, P.O. Box 20036, Houston, TX 77225; 713-500-9032.

Students register at UT Southwestern for courses in the Medical School. Registration and tuition for courses for the M.P.H. are handled through UT Health-School of Public Health.

• **Prerequisites**

Applicants to the M.D./M.P.H. program must meet all the prerequisites for the Medical School as outlined in this chapter of the catalog. The School of Public Health does not have prerequisite course requirements, but a baccalaureate degree is necessary for an application. In addition, it is recommended that applicants have at least a 3.0 GPA from course work in higher education. Applicants who are citizens of countries where English is not the native language are required to submit scores from the Test of English as a Foreign Language.

• **Application Procedure**

The student must submit two applications: one each to the Medical School and the School of Public Health. School of Public Health applications may be obtained from the school's Office of Enrollment Services at the address listed previously. Medical School applications must follow the procedure outlined in the Application Procedure section of this chapter. Candidates who submit both applications simultaneously will receive notification from both Programs before the beginning of the academic year, though notifications may occur at different times.

Applicants should submit two letters of recommendation, a statement of purpose, and official transcripts covering enrollment in accredited institutions of higher education to the School of Public Health enrollment services' office. The same letters of recommendation submitted for the Medical School application also may be submitted for the School of Public Health application. Transcripts should be sent directly to the School of Public Health by the educational institution.

Medical students also may apply to the School of Public Health at any time during their Medical School tenure. Final acceptance to the M.P.H. program may be contingent upon satisfactory progress in the Medical School.

• **Curriculum**

The School of Public Health coursework typically begins the summer prior to matriculation in medical school. The curriculum includes courses in the five basic public-health areas (epidemiology, biostatistics, behavioral sciences, environmental health sciences, and health management and policy sciences) plus electives. Completion of the degree also requires a semester practicum of 180 hours in a public-health setting which is typically completed during the summer after the first year of Medical School and a master's thesis.

M.D./MBA PROGRAM

The M.D./MBA program focuses on giving future physicians the skills to successfully integrate medicine and business. The combined degree program is a joint effort of UT Southwestern Medical School and the School of Management at UT Dallas. The five-year program offers interested students the benefits of a medical education and a strong business management curriculum.

• **Curriculum**

Students usually complete the first three years of the medical curriculum (all basic science courses and the majority of the clerkships) and then take a one-year leave of absence from the Medical School to complete the business education. Students then return to the Medical School to complete the medical curriculum in the required fourth-year clinical clerkships and electives. At the end of the five years, the M.D. degree will be awarded by UT Southwestern and the MBA by UT Dallas.

The business curriculum starts with the traditional MBA core (accounting, information technology, economics, statistics, marketing, finance and organizational behavior) and adds additional seminars that emphasize the "softer" skills needed to succeed in business. Students also may select from a large number of elective courses offered by the Management School to design their own specialization. Elective courses include corporate finance and policy, consumer behavior, database management systems, conflict and negotiation, money and capital markets, corporate taxation, and corporate financial reporting. The goal of the MBA program is to prepare leaders who have mastered the fundamentals of business and learned how to innovate in a dynamic environment.

• **Application Procedure**

Students interested in the combined M.D./MBA program should apply for admission to the Medical School following the procedure outlined in the Application Procedure section in this catalog. Once a student is admitted into the medical program, application for the MBA program is completed in consultation with the UT Southwestern M.D./MBA adviser. The exact plan for applying to the business program, leave of absence from the Medical School, and completing the business curriculum will be developed individually with each student to meet each student's educational and professional objectives. The GMAT is not required for applicants to the MBA program.

Clinical and Research Fellowships

The various clinical and basic science departments of the Medical School offer clinical and research fellowships at later stages of training. The fellowships in the clinical departments are designed to offer clinical and investigational training in preparation for subspecialty certifying boards or for other subspecialty expertise not subject to board examination but usually prerequisite for academic careers. Fellowships in the basic science departments provide advanced research training, usually to those with Ph.D. or M.D./ Ph.D. degrees.

Public Education/Continuing Medical Education

The Office of Public Education/Continuing Medical Education is responsible for coordinating continuing professional development of physicians. The CE office also conducts continuing education for UT Southwestern School of Health Professions and UT Southwestern Graduate School of Biomedical Sciences.

Under the direction of the Associate Dean for Medical Education, the full-time staff includes a director of public education, associate director of national programs, and CE coordinators who are experienced in meeting planning and instructional design. An advisory committee composed of UT Southwestern faculty assures the quality and relevance of the programming.

The Office of Continuing Education/Public Education serves as a valuable resource for medical and health professionals to keep abreast of scientific knowledge; to enhance and improve their care of patients; and to help maintain licensure and professional certification requirements. Students and resident physicians are encouraged to attend continuing medical education events with appropriate approvals.

The Accreditation Council for Continuing Medical Education nationally accredits the UT Southwestern Office of Continuing Education/Public Education. Educational offerings

sponsored by the CE office provide AMA/PRA category one credit. Various other kinds of credit are obtained from professional associations and other specialty societies such as the American Academy of Family Physicians. Attendance records are retained in the CE office.

More information, as well as a calendar of continuing education events, is available at:

http://www.utsouthwestern.edu/about-us/administrative-offices/continuing-medical-education/index.html

Distance Learning

UT Southwestern offers distance learning courses to on-campus and off-campus students enrolled for academic credit in the health professions or for continuing education.

Undergraduate and postgraduate courses are under development by UT Southwestern's faculty. As courses are created, they will proceed through the usual phases of academic course review and approval. UT Southwestern does not offer, nor does it plan to offer at this time, full degree programs via distance education.

DEPARTMENTAL FACULTY

Anesthesiology and Pain Management

The Department is led by Charles Wesley Whitten, M.D., Professor and Chair. Information is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/anesthesiology/index.html

Biochemistry

The Department is led by Margaret Phillips, Ph.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/biochemistry/faculty.html

Cardiovascular and Thoracic Surgery

The Department is led by Michael E. Jessen, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/cardiovascular-thoracic-surgery/faculty.html

Cell Biology

The Department is led by Sandra Schmid, Ph.D., Professor and Chair. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/cell-biology/faculty/index.html

Clinical Sciences

The Department is led by Celette Sugg Skinner, Ph.D., Professor and Interim Chair. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/clinical-sciences/faculty/index.html

Dermatology

The Department is led by Kim Yancey, M.D., Professor and Chair. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/dermatology/faculty.html

Emergency Medicine

The Department is led by Deborah B. Diercks, M.D., Professor and Chair. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/emergency/faculty/index.html

Family and Community Medicine

The Department is led by F. David Schneider, M.D., M.S.P.H., Professor and Chair. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/family-community-medicine/faculty.html

Immunology

The Department is led by Lora Hooper, Ph.D., Professor and Chair. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/immunology/faculty.html

Internal Medicine

The Department is led by David H. Johnson, M.D., FACP, Professor and Chair. Information on faculty members from the various divisions is located at: http://www.utsouthwestern.edu/education/medical-school/departments/internal-medicine/faculty/index.html

Microbiology

The Department is led by Michael V. Norgard, Ph.D., Professor and Chair. Information on faculty members is located at: http://www.utsouthwestern.edu/education/medical-school/departments/microbiology/faculty.html

Molecular Biology

The Department is led by Eric N. Olson, Ph.D., Professor and Chair. Information on faculty members is located at: http://www.utsouthwestern.edu/education/medical-school/departments/molecular-biology/faculty-and-labs.html

Molecular Genetics

The Department is led by Nobel Laureate Joseph Goldstein, Ph.D., Professor and Chair. Information on faculty members is located at: http://www.utsouthwestern.edu/education/medical-school/departments/molecular-genetics/faculty.html

Neurological Surgery

The Department is led by Hunt Batjer, M.D., Professor and Chair. Information on faculty members is located at: http://www.utsouthwestern.edu/education/medical-school/departments/neurological-surgery/faculty.html

Neurology and Neurotherapeutics

The Department is led by Mark Goldberg, M.D., Professor and Chair. Information on faculty members is located at: http://www.utsouthwestern.edu/education/medical-school/departments/neurology/faculty/index.html

Neuroscience

The Department is led by Joseph Takahashi, Ph.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/neuroscience/faculty-research.html

Obstetrics and Gynecology

The Department is led by Steve Bloom, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/obstetrics-gynecology/faculty.html

Ophthalmology

The Department is led by James P. McCulley, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/ophthalmology/faculty.html

Orthopaedic Surgery

The Department is led by Dane Wukich, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/orthopaedic-surgery/faculty.html

Otolaryngology – Head and Neck Surgery

The Department is led by Bradley Marple, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/otolaryngology/faculty.html

Pathology

The Department is led by James S. Malter, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/pathology/faculty/index.html

Pediatrics

The Department is led by Julio Perez-Fontan, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/pediatrics/faculty.html

Pharmacology

The Department is led by David Mangelsdorf, Ph.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/pediatrics/faculty.html

Physical Medicine and Rehabilitation

The Department is led by Kathleen Bell, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/physical-medicine/faculty/index.html

Physiology

The Department is led by Duojia Pan, Ph.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/physiology/research/index.html

Plastic Surgery

The Department is led by Jeffrey Kenkel, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/plastic-surgery/faculty.html

Psychiatry

The Department is led by Carol Tamminga, M.D., Professor and Chair. Information is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/psychiatry/index.html

Radiation Oncology

The Department is led by Hak Choy, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/radiation-oncology/faculty.html

Radiology

The Department is led by Neil M. Rofsky, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/radiology/faculty.html

Surgery

The Department is led by Herbert J. Zeh III, M.D., Professor and Chair. Information on faculty members within Oral and Maxillofacial Surgery, Pediatric Surgery, Surgical Oncology, Surgical Transplantation, Vascular Surgery is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/surgery/faculty.html

Urology

The Department is led by Claus Roehrborn, M.D., Professor and Chair. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/urology/faculty.html

Advanced Imaging Research Center

The Center is directed by Dean Sherry, Ph.D., and its Medical Director is Craig Malloy, M.D. Information is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/airc/index.html

Center for Genetics of Host Defense

The Center is led by Nobel Laureate Bruce Beutler, M.D., Professor and Director. Information on faculty members is located at:
http://www.utsouthwestern.edu/education/medical-school/departments/genetics-host-defense/faculty/index.html

Eugene McDermott Center for Human Growth and Development

The Center is led by Helen H. Hobbs, M.D., Professor and Director. Information on faculty members is located at:

http://www.utsouthwestern.edu/education/medical-school/departments/mcdermott-center/faculty.html

Harold C. Simmons Comprehensive Cancer Center

The Center is led by Carlos L. Arteaga, M.D., Director and Professor of Internal Medicine. Information on faculty leadership is located at:
http://www.utsouthwestern.edu/simmons/about/leadership.html