

# School of Health Professions

Undergraduate and Graduate  
Catalog

**2018-2019**  
(FY19)

THE UNIVERSITY OF TEXAS  
MD Anderson  
~~Cancer~~ Center

Making Cancer History®

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**The University of Texas MD Anderson Cancer Center  
School of Health Professions**

Published September 2018

Last reviewed FY17-18 Academic Years

**Disclaimer**

This catalog is a general information publication only. It is not intended to nor does it contain all regulations that relate to students. The provisions of this catalog do not constitute a contract, express or implied, between any applicant, student or faculty member and The University of Texas MD Anderson Cancer Center School of Health Professions or The University of Texas System. The University of Texas MD Anderson Cancer Center reserves the right to withdraw courses at any time, to change fees or tuition, calendar, curriculum, degree requirements, graduation procedures and any other requirements affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled.

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# The University of Texas MD Anderson Cancer Center School of Health Professions

The School of Health Professions is located within the main campus of The University of Texas MD Anderson Cancer Center. We offer Bachelor of Science and Master of Science degrees in exciting and high demanding career fields in laboratory sciences, radiologic sciences, health care disparities, management and education. At the School of Health Professions, students learn from faculty with years of practical experience in their field who ensure that the curriculum combines a rich classroom environment with hands-on practical experience. The student's clinical experience takes place in an institution that is recognized worldwide for its excellence in education, health care and research, and has the distinction of being one of the nation's first Comprehensive Cancer Centers.

## Degree Programs

### Baccalaureate of Science

- Clinical Laboratory Science
- Cytogenetic Technology
- Cytotechnology
- Diagnostic Imaging
- Diagnostic Medical Sonography
- Health Care Disparities, Diversity and Advocacy
- Histotechnology
- Medical Dosimetry
- Molecular Genetic Technology
- Radiation Therapy

### Master of Science

- Diagnostic Genetics
- Radiologic Sciences

## Accreditation

MD Anderson is accredited by the Southern Association of Colleges and Schools (SACS) to award degrees at the baccalaureate, master's and doctoral levels.



### Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)

1866 Southern Ln.  
Decatur, Georgia 30033  
Phone 404-679-4500  
Fax 404-679-4558

[Email](#)

The programs of School of Health Professions are accredited and approved by nationally recognized agencies, including:



### Commission on Accreditation of Allied Health Education Programs (CAAHEP)

25400 U.S. Hwy 19 N., Ste. 158  
Clearwater, FL 33763  
Phone 727-210-2354  
Fax 727-210-2354

[Email](#)



### Joint Review Committee on Education in Radiologic Technology (JRCERT)

20 N. Wacker Dr., Ste. 2850  
Chicago, IL, 60606-3182  
Phone 312-704-5300  
Fax 312-704-5304

[Email](#)



### National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

5600 N. River Rd., Ste. 720  
Rosemont, IL 60018-5119  
Phone 773-714-8880  
Fax 773-714-8886

[Email](#)

## Mission

The School of Health Professions, in concert with the mission and visions of The University of Texas MD Anderson Cancer Center, is committed to the education of health care professionals, through formal academic programs that award institutional certificates and degrees in health sciences.

## Vision

The University of Texas MD Anderson Cancer Center School of Health Professions faculty is committed to:

- Setting the standard for world class didactic and clinical instruction necessary for program graduates to perform procedures within a specialty area, to integrate and relate clinical data and to solve problems related to the production of clinical results
- Meeting the current and future needs of health science professions by developing and implementing formal academic didactic and clinical education programs incorporating state-of-the-art diagnostic and treatment techniques
- Developing, understanding and appreciating research and quality management programs; providing the skills necessary to establish quality control measures and to make appropriate decisions to maintain accuracy and precision instilling a professional code of conduct related to patients, health care professionals and the public that demonstrates the highest regard for human dignity and life
- Identifying the value of lifelong learning of students and graduates through continued education and professional competence

## Core Values

**Caring:** By our words and actions, we create a caring environment for everyone.

- We are sensitive to the concerns of our patients and our co-workers.
- We are respectful and courteous to each other at all times.
- We promote and reward teamwork and inclusiveness.

**Integrity:** We work together to merit the trust of our colleagues and those we serve.

- We hold ourselves, and each other, accountable for practicing our values.
- We communicate frequently, honestly and openly.
- By our actions, we create an environment of trust.

**Discovery:** We embrace creativity and seek new knowledge.

- We help each other to identify and solve problems.
- We seek personal growth and enable others to do so.
- We encourage learning, creativity and new ideas.

## The University of Texas System Board of Regents

The School of Health Professions is subject to the *Rules and Regulations* of the Board of Regents of The University of Texas System.

The UT Board of Regents, the governing body for the UT 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 that expires on May 31.

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.

## Officers

Sara Martinez Tucker, Chairman	term expires 02/21
Jeffery D. Hildebrand, Vice Chairman	term expires 02/19
Paul L. Foster, Vice Chairman	term expires 02/19

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## Regents

Ernest Aliseda	term expires 02/19
Brittany E. Jewell, Student	term expires 05/19
David J. Beck	term expires 02/21
R. Steven Hicks	term expires 02/21
Kevin Paul Eltife	term expires 02/23
Janiece M. Longoria	term expires 02/23
James Conrad "Rad" Weaver	term expires 02/23

Each Regent's term expires when a successor has been appointed, qualified and taken the oath of office. The Student Regent serves a one-year term.

Francie A. Frederick is the General Counsel to the Board of Regents.

## The University of Texas MD Anderson Cancer Center

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### Institutional Mission

The mission of The University of Texas MD Anderson Cancer Center is to eliminate cancer in Texas, the nation and the world through outstanding programs that integrate patient care, research and prevention and through education for undergraduate and graduate students, trainees, professionals, employees and the public.

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### Institutional Vision

We shall be the premier cancer center in the world, based on the excellence of our people, our research-driven patient care and our science. We are Making Cancer History.

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### Institutional Core Values

#### **Caring: By our words and actions, we create a caring environment for everyone.**

- We are sensitive to the concerns of our patients and our co-workers.
- We are respectful and courteous to each other at all times.
- We promote and reward teamwork and inclusiveness.

#### **Integrity: We work together to merit the trust of our colleagues and those we serve.**

- We hold ourselves, and each other, accountable for practicing our values.
- We communicate frequently, honestly and openly.
- By our actions, we create an environment of trust.

#### **Discovery: We embrace creativity and seek new knowledge.**

- We help each other to identify and solve problems.
- We seek personal growth and enable others to do so.
- We encourage learning, creativity and new ideas.

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## Administrative Officers

### Senior Leadership

Peter W. T. Pisters, M.D., President  
Steven R. Haydon, J.D., Senior Vice President, Regulatory Affairs  
Ben Melson, Senior Vice President, Chief Financial Officer  
Shibu Varghese, Senior Vice President, People and Business Operations; Chief Diversity Officer  
*Vacant, Senior Vice President, Chief Technology and Digital Officer*  
*Vacant, Chief Operating Officer*  
Stephen Hahn, M.D., Chief Medical Executive  
Giulio Draetta, M.D., Ph.D., Chief Scientific Officer *ad interim*  
Chris McKee, Senior Vice President, Strategy and Business Development  
Todd Pullin, Senior Vice President, Institutional Advancement  
Ferran Prat, Ph.D., J.D., Senior Vice President, Strategic Industry Ventures  
Mark Moreno, Vice President, Governmental Relations  
Carin Hagberge, M.D., Chief Academic Officer

Diane Bodurka, M.D., Vice President, Education  
Peter Hu, Ph.D., Dean *ad interim*  
William Undie, Ed.D., Dean *ad interim*

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## Institutional Profile

### Introduction

The University of Texas MD Anderson Cancer Center is one of the world's most respected centers devoted exclusively to cancer patient care, research, education and prevention. It is located in central Houston in the Texas Medical Center.

MD Anderson was created in 1941 as part of the UT System. The institution is one of the nation's original three comprehensive cancer centers designated by the National Cancer Act of 1971 and is one of 49 National Cancer Institute-designated comprehensive cancer centers today.

U.S. News & World Report's "Best Hospitals" survey has ranked MD Anderson the nation's top hospital for cancer care. MD Anderson has been ranked the leading cancer hospital for the past 10 of 11 years. The institution has been named one of the nation's top two hospitals for cancer care every year since the survey began in 1990.

### Patient Care

Since 1944, 1.3 million patients have turned to MD Anderson for cancer care. In Fiscal Year 2017, more than 137,000 people sought the superior care that has made MD Anderson so widely respected. More than 10,800 participants were enrolled in 1,250+ clinical trials exploring innovative treatments. MD Anderson provided uninsured or underinsured Texans more than \$179.4 million in uncompensated care.

### Research

At MD Anderson, important scientific knowledge gained in the laboratory is rapidly translated to clinical care. In FY17, MD Anderson invested more than \$844 million in research.

### Education

More than 7,091 trainees, including physicians, scientists, nurses and allied health professionals, took part in educational programs at MD Anderson in FY17. The School of Health Professions awards degrees in bachelor's programs and master's program in allied health disciplines. In collaboration with The University of Texas Health Science Center at Houston (UTHealth), MD Anderson awards M.S. and Ph.D. degrees at The University of Texas MD Anderson UTHealth Graduate School.

In addition, thousands of health professionals participate in continuing education and distance learning opportunities. MD Anderson also provides education programs for patients, survivors, caregivers, healthy people and those at an elevated risk of cancer.

### Prevention

MD Anderson continues to set the standard in cancer prevention research and the translation of new knowledge into innovative, multidisciplinary care.

The institution's Cancer Prevention and Population Sciences division is dedicated to:

- Ending cancer through pioneering research into the roles that biologic, genetic, environmental, economic, behavioral and social factors play in cancer development.
- Investigating various types of interventions to prevent or reduce cancer risk.
- Improving cancer care delivery, safety, availability and affordability.

Through the Duncan Family Institute for Cancer Prevention and Risk Assessment, the division is investing in promising new research directions and integrating basic research and clinical studies to accelerate their translation from the lab to the clinic to the community.

The Lyda Hill Cancer Prevention Center provides cancer risk assessments; screening exams based on genetics, age and gender; and personalized risk-reduction strategies, including lifestyle-based interventions and chemoprevention.

## Staff

MD Anderson employs more than 19,530 people, including 1,743 faculty members. A volunteer workforce composed of 1,141 on-site, trained volunteers and 2,091 off-site myCancerConnection trained survivor volunteers contributed 122,367 hours of service in FY17.

## Locations

In addition to MD Anderson's main campus in the Texas Medical Center, and research campuses in Bastrop and Smithville, the institution provides cancer care at several convenient locations throughout Greater Houston. MD Anderson Cancer Network® advances our mission of eliminating cancer by collaborating with community hospitals and health systems to improve the quality of care nationwide.

### Houston-area locations

- Bay Area, Katy, West Houston (diagnostic imaging), Bellaire (diagnostic imaging), Sugar Land, The Woodlands, Memorial City (surgical clinic) and The Woman's Hospital of Texas (gynecologic oncology)
- MD Anderson is now the exclusive provider of breast radiology services for 15 of Memorial Hermann's breast care centers in the Houston area.
- MD Anderson physicians provide cancer care to patients at Lyndon B. Johnson Hospital.

### MD Anderson Cancer Network®

- Partner members: Banner MD Anderson Cancer Center (Gilbert, Arizona), MD Anderson Cancer Center at Cooper (Camden, New Jersey), Baptist MD Anderson Cancer Center (Jacksonville, Florida), Scripps MD Anderson Cancer Center (San Diego), Summit Medical Group MD Anderson Cancer Center (Berkeley Heights, New Jersey), UTHealth San Antonio MD Anderson Cancer Center and UTHealth Northeast MD Anderson Cancer Center (Tyler, Texas)
- Associates: Hospital Israelita Albert Einstein (São Paulo), MD Anderson Cancer Center Madrid and Vehbi Koc Foundation American Hospital in Istanbul
- Certified members: 17 hospitals and health systems in 14 states

### MD Anderson affiliates

- Presbyterian MD Anderson Radiation Treatment Center (Albuquerque, New Mexico)
- MD Anderson Radiation Treatment Center at American Hospital in Turkey

### Global Academic Programs

Global Academic Programs (GAP) facilitates the Sister Institution Network, which is the largest global network of cancer centers (36 institutions in 24 countries), working collaboratively on research and education.

## Admissions

Admission to the School of Health Professions is contingent upon acceptance to one of the programs. Each program has specific prerequisite course requirements for graduation. Students seeking a baccalaureate degree from the School of Health Professions must complete a minimum of 120 semester credit hours (SCH) of which 42 general education “core” SCH must be transferred to the School of Health Professions from an accredited college or university with acceptable transferability of credit.

Admission criteria includes previous grade point average (GPA), professional references, essay and personal interviews. Admission is competitive. **Achieving the minimum criteria does not guarantee admission into the School of Health Professions.**

### Texas Core Curriculum Requirements

Students receiving their first baccalaureate degree from the School of Health Professions must successfully complete the Texas Core Curriculum requirements ([19 Texas Administrative Code \(TAC\), §4.28](#)). The core curriculum consists of 42 SCH in specified component areas. If a student’s transcript from another Texas public college or university indicates that the student has completed that institution’s core curriculum, no additional core curriculum requirements will be imposed. If a student has not completed the core requirement at another Texas institution prior to entering the School of Health Professions, the student will be required to earn academic credits from a Texas public college or university to fulfill the School of Health Professions core curriculum course requirements.

The School of Health Professions does not offer lower-level core curriculum courses, but has developed a core curriculum in order to accommodate students who transfer from other states or private institutions. If a student enrolls at the School of Health Professions prior to completing the core curriculum requirements elsewhere, the student is responsible for completing the core curriculum requirements listed below, and should obtain approval from his or her advisor prior to registering for courses intended to fulfill these requirements. The same requirements also apply to out-of-state students ([TEC, §61.821 et seq.](#)).

#### Texas Core Curriculum (42 SCH)

COMMUNICATION ENGL 1301 Composition I ENGL 1302 Composition II	6
MATHEMATICS MATH 1314 College Algebra or higher	3
LIFE AND PHYSICAL SCIENCES Courses in biology, chemistry, physics, geology, or other natural sciences	12
LANGUAGE, PHILOSOPHY AND CULTURE Courses in literature, philosophy, modern or classical language/literature, cultural studies, or equivalent	3
CREATIVE ARTS Courses in arts, dance, music appreciation, music, drama, or equivalent	3
AMERICAN HISTORY HIST 1301 United States History I HIST 1302 United States History II	6
GOVERNMENT/POLITICAL SCIENCE GOVT 2305 Federal Government GOVT 2306 Texas Government	6
SOCIAL AND BEHAVIORAL SCIENCES Courses in anthropology, economics, criminal justice, geography, psychology, sociology, social work, or equivalent	3

### General Requirements

Consideration for admission to one of the School of Health Professions Programs is not based on race, religion, national origin, veteran status,

sex, age or disability ([34 Code of Federal Regulations \(CFR\) Section 106.9](#)). The School of Health Professions is committed to providing reasonable accommodations for students with disabilities. Students who can fulfill the nonacademic technical standards and who have disabilities, will need to disclose those disabilities at the beginning of the program, if reasonable accommodation is to be requested. The student should initiate the disclosure process with his or her discipline-specific Program Director. Other resources within the institution may be consulted if appropriate. Documentation may be required to verify certain disabilities.

The following are required for admission to the School of Health Professions’ programs ([TEC, §51.808](#) and [Regents’ Rules and Regulations, Rule 40303](#)):

- Application to the program, including submission of official transcripts, three professional reference forms and a personal interview (Note: Histotechnology and Health Care DDA programs do not require an interview).
- Completion of all prerequisite coursework:
  1. Required courses must be acceptable toward a major in the respective field of study. Survey courses will not fulfill these requirements.
  2. Candidates who completed the prerequisite courses seven or more years before admission may be required to update their academic skills. For specific information, contact the program director.
  3. A minimum overall GPA and science GPA of 2.5 on a 4.0 scale overall is preferred. Meeting the minimum criteria does not guarantee acceptance.
- Test of English as a Foreign Language (TOEFL) - For all international students whose native language is not English, proof of English language proficiency must be submitted. A minimum TOEFL score of 80 on the internet-based format or 550 on the paper exam is required.
- Texas Success Initiative (TSI): In accordance with [TEC, Subchapter F-1](#), the School of Health Professions will comply with the TSI. All applicants must provide proof of successful attainment of the TSI, unless they fall into the following categories:
  - Graduation from an accredited Texas public institution of higher education with an associate or baccalaureate degree
  - Completion of 60 SCH of the prerequisites for any School of Health Professions program with a grade of C (75) or higher
  - Acceptable scores (within five years of the application) on any of the following ([TEC, §51.803\(a\)](#)):
    - SAT (combined verbal and mathematics score of 1070 with a minimum of 500 on both the verbal and math test)
    - ACT (composite score of 23 with a minimum of 19 on both English and mathematics)
    - TAAS exams (with a minimum scale score of 1770 on the writing test, a Texas Learning Index of 86 on the mathematics test and 89 on the reading test)
  - Proof of an applicant’s readiness to enroll in college level coursework, as related to TSI, will be determined by the Office of the Registrar based upon review of official transcripts from previously attended institutions. Satisfactory performance on an acceptable testing instrument is a requirement for admission to the baccalaureate program or to non-degree-seeking admission status.

For additional information, please contact the Office of the Registrar at

**The University of Texas Health Science Center at Houston**  
PO Box 20036  
Houston, Texas, 77225  
713-500-3361

Additional requirements and/or considerations are listed on the specific [program pages](#) of the School of Health Professions web site.

### Nonacademic Requirements: School of Health Professions Technical Standards

#### Sensory/Observational Skills

- Candidates for admission to the School of Health Professions must be able to observe demonstrations and participate in laboratory or clinical experiments and practices as required by the program of interest.

- Candidates must have visual acuity corrected to 20/20 and visual perception with respect to color. A color blindness test will be administered during orientation.
- Candidates must be able to visually identify probe colors on slides, computer readout and monitor, interpret reactions on slides, microwells and test tubes and visually identify cellular components and microorganisms under a microscope.
- Candidates must be able to view images for accuracy, view computer screens for extended periods, visually monitor patients during treatment and treatment planning procedures in dim light.
- Candidates must be able to hear various equipment alerts, sounds and signals and background sounds during equipment operations, distinguish phonetic sounds either mechanically or from conversation to perform procedures in low light and monitor patients via audio monitors during treatment and treatment planning procedures.

### Physical and Motor Skills

- Candidates for admission to the School of Health Professions must have sufficient motor function to operate/manipulate and maintain a microscope and/or microtome and other laboratory equipment.
- Candidates must have the ability to obtain and/or verify patient samples, ambulate sufficiently to collect blood specimens from patients and possess sufficient stamina to tolerate physically taxing workloads.
- Candidates must be able to demonstrate manual dexterity required to process samples, operate, maintain and repair laboratory equipment or maintain balance while positioning patient and adjusting x-ray tube and/or perform all aspects of clinical laboratory testing or radiological procedures.
- Candidates must be able to lift 30 pounds of weight overhead, be able to reach up to six feet off floor, be able to move immobile patients from stretcher to treatment table and/or push wheelchair from waiting area to treatment room.
- Candidates for the MRI program must not have foreign bodies or medical implants that are contraindicated for the MRI environment.
- Candidates must be able to stand for long periods of time, maneuver through congested areas to perform positioning procedures and move and adjust medical equipment such as x-ray tubes.

### Communication Skills

- Candidates for admission to the School of Health Professions must be able to communicate in English and medical terminology in oral and written form to faculty, staff, colleagues, other health care professionals, patients and visitors.
- Candidates must have the ability to participate in discussions in the classroom and clinical areas.
- Candidates must be able to complete and maintain written assignments and reports.

### Intellectual/Conceptual, Integrative and Qualitative Skills

- Candidates for admission to the School of Health Professions must have the ability to measure, calculate, analyze, interpret, synthesize and evaluate data.
- Candidates must be able to comprehend three-dimensional and spatial relationships on a computer monitor or under a microscope and monitor and input clinical data.
- Candidates must have the ability to learn, prioritize and perform laboratory or radiologic testing.
- Candidates must have the ability to make sound judgement and correlate disease states with clinical data.
- Candidates must possess organizational skills and be able to problem solve in a timely manner and under stressful conditions.

### Social Behavior and Professionalism

- Candidates for admission to the School of Health Professions must demonstrate the ability to follow instructions/procedures with accuracy and precision.
- Candidates must possess the ability to maintain intellectual and emotional stability and maturity under stress, while maintaining appropriate performance standards.
- Candidates must have the ability to manage time, organize workload and meet deadlines.

- Candidates must be able to function as a part of a team and learn to delegate responsibilities appropriately.
- Candidates must be able to exhibit respect of self and others and project an image of professionalism, including appearance, dress and confidence and maintain complete personal integrity and honesty.
- Candidates must be able to interact appropriately with diverse personalities and populations.
- Candidates must adhere to safety guidelines for self and others and be able to comply with standards and regulations required by external agencies.

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## Transferability of Credit

The Office of the Registrar will evaluate all official transcripts from regionally accredited institutions on an individual basis to determine if coursework is acceptable for transfer credit. Official transcripts of credit earned from all institutions of higher education previously attended must be submitted as part of the admissions requirement. The official transcript must include SCH and a grade symbol that reflects satisfactory performance. Not all credit earned by equivalency will be used in the calculation of the student admission GPA. The School of Health Professions does not consider a grade of *D* in program-specific prerequisite courses to be acceptable performance. Program-specific prerequisite courses taken at other institutions in which a grade below *C-* was earned are not transferable or applicable toward degree requirements.

Students who satisfactorily completed an accredited health sciences program that holds current licensure/certification may be allowed up to 30 SCH of transfer credit. The number of SCH will be determined by the curriculum committee of the School of Health Professions.

Accepted students should meet with their program director or designated faculty to complete a degree plan at the beginning of the program. Their degree plan should be reviewed and updated periodically throughout the program. The student is responsible for tracking and completing all course requirements for graduation.

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## International Students

Students who complete all or part of their college coursework outside the United States (U.S.) must submit their transcripts to an approved accredited U.S. evaluation agency. Students who are seeking a certificate of completion from the School of Health Professions should refer to the [approved evaluation list](#) (pdf) for a list of acceptable agencies for course-by-course and grade-by-grade evaluations.

### Test of English as a Foreign Language (TOEFL)

For all international students whose native language is not English, proof of English language proficiency must be submitted. The School of Health Professions accepts the Test of English as a Foreign Language (TOEFL) as a standardized test to measure the English language ability of non-native speakers. A minimum TOEFL score of 80 on the internet-based format or 550 on the paper exam is required.

The TOEFL Designated Institution Code for MD Anderson is **6906**.

Applicants meeting any criteria below are exempt from the TOEFL:

- If you are a U.S. citizen or permanent resident, regardless of your native language
- If you have earned a high school diploma from an accredited U.S. high school
- If you have earned an Associate of Arts, Associate of Science, Bachelor's degree or higher level degree from an accredited U.S. college or university
- If you have obtained a secondary school degree or higher level degree from a country where English is spoken as the native language

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## Transfer Students

The School of Health Professions does not accept students who are, or have been, enrolled in a similar program and wish to transfer into one of the School of Health Professions programs. All students must take and complete all required courses shown in the current Health Professions Student Catalog. If the School of Health Professions

student prefers to change programs, the student will need to withdraw from the current program and formally apply to the new School of Health Professions program of choice.

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## Orientation

All students who have fulfilled all the requirements for admission, and have been granted admission status, are required to attend an orientation program. Information about orientation is mailed directly to students who have been admitted to the School of Health Professions.

During orientation, students have an opportunity to interact with faculty and university staff members. The program is designed to prepare students for the first semester and to acquaint them with the classroom facilities and all the additional resources and services available to them.

Required check-in and orientation sessions for international students are organized by the Academic and Visa Administration – Visa Office. For additional information contact:

**Academic and Visa Administration – Visa**  
1MC17.3439  
7007 Bertner Ave.  
Houston, Texas 77030  
Phone 713-792-1112  
Fax 713-792-6229  
[Email](#)

Any general questions about orientation should be directed to:

**The University of Texas MD Anderson Cancer Center  
School of Health Professions**  
1515 Holcombe Blvd., Unit 0002  
Houston, Texas 77030-4009  
Phone 713-745-1205  
Fax 713-792-0800

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## Instructions for Applicants

The Office of the Registrar at UTHealth serves as the Registrar for the School of Health Professions. To access the School of Health Professions on-line Application Form and the on-line Recommendation Form for admission into the program, visit the [How to Apply page](#).

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## Registration

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### Residency

Under Texas state law, an applicant or enrolled student is classified as a resident of Texas, a nonresident or a foreign student. Residency for admission and tuition purposes at a public college or university in Texas is different from residency for voting or taxing purposes.

Before an individual may register at the School of Health Professions and pay tuition at the rate provided for residents of the State of Texas, the individual must complete the “Residency Core Questions.”

To qualify as a Texas resident, an individual must reside in Texas for at least 12 consecutive months and establish a domicile in Texas prior to enrollment. An applicant or student who is claimed as a dependent on a parent’s most recent federal tax return will be classified based on the parent’s qualifications for residency.

An individual, despite his or her citizenship, can be classified as a Texas resident if the individual:

- Graduated from a high school or received a GED in this state
- Resided in this state for at least three years immediately preceding that graduation or receipt of GED
- Resided in this state the 12 months preceding the census date of the academic semester in which the person enrolls
- Provides the required affidavit regarding permanent residency in accordance with [TEC, §54.053](#)
- An individual’s residency classification is based on information from his or her admission application. If an applicant or student is classified as a nonresident and wishes to be reclassified as a resident, it is necessary to submit a Core Residency Questions

Form, which provides more detailed background information than is available from the admission application ([19 TAC, §21.21](#), et seq.).

For information about in-state tuition eligibility for members of the U.S. Armed Forces who have resided in Texas, consult the third paragraph of the Tuition and Fees Exceptions section of the Tuition and Fees policy.

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## Academic Fresh Start

A Texas resident may apply for admission to and enroll as an undergraduate student under [TEC, §51.931](#), Right to an Academic Fresh Start. If an applicant elects to seek admission under this section, the School of Health Professions shall not consider academic course credits or grades earned by the applicant ten (10) or more years prior to the starting date of the semester in which the applicant seeks to enroll. An applicant who applies under this section and is admitted as student may not receive any course credit for courses undertaken ten (10) or more years prior to enrollment.

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## Tuition and Fees

In compliance with [TEC, §61.0777](#), the UTHealth Office of the Registrar provides current School of Health Professions Tuition and Student Fee schedule at the [Office of the Registrar Tuition and Fee Schedule page](#). Additional information regarding reasonable cost of living expenses for the period of enrollment is available on the UTHealth [Office of the Registrar’s Cost of Attendance page](#) and will be periodically updated ([19 TAC, §21.2220](#)). Note that School of Health Professions students are not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an on-line retailer ([TEC, §51.9705](#) and [19 TAC, §4.215](#), et seq.).

A student who fails to make full payment of tuition and fees, including any late fees assessed, to the University when the payments are due is subject to one or more of the following actions at the University’s option:

- Bar against readmission to the institution
- Withholding of grades, degree and official transcript
- All penalties and actions authorized by law

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## Student Financial Responsibility

Students are responsible for fulfilling all financial obligations to MD Anderson. Students who do not meet their financial responsibilities are subject to withdrawal from school, the withholding of grades, degrees and official transcripts. Defaulting students are barred against readmission to the institution, and will be subject to all penalties and actions authorized by law.

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## Tuition

Tuition for Texas residents is governed by the Texas Education Code (TEC). Tuition fees are subject to change by legislative or regental action and become effective when enacted. Fee increases are determined by the institution and not mandated by the legislature ([General Appropriations Act 2010-2011](#) (pdf), Article IX, §6.16). For more detailed information about fees and application time tables, contact the UTHealth Office of the Registrar.

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### Tuition and Fees Exemptions

Students under 21 years of age who are children of firefighters or peace officers who died or were disabled in the line of duty are exempt from tuition. Individuals are not considered disabled unless they furnish proof of disability.

Texas law provides exemptions from tuition and fees for various categories of students, including but not limited to: Students who are dependent children of any person who is a domiciliary of Texas on active duty as a member of the U.S. Armed Forces and who, at the time of registration, is classified by the Department of Defense as a prisoner of war or missing in action. For more information, about these and additional exemptions, visit the [College for All Texans site](#) and/or contact the Office of the Registrar.

The School of Health Professions does not provide concurrent enrollment.

Resident tuition and fee rates are available to certain veterans and service members, their spouses and children, if the veteran or service member is eligible for benefits. For more information email the Office of the Registrar and see [TEC, §54.241](#).

## Incidental Fees

Incidental fees for enrolled students can be found on the [Office of the Registrar's site](#).

## Installment Payments for Tuition and Fees

All tuition and fee payments are made to the UTHHealth Bursar's Office. The Bursar's Office will allow payments in installments in accordance with the [posted deadlines](#)

Bursar's Office  
7000 Fannin St., Ste. 2240  
Houston, TX 77030  
Office 713-500-3895  
Fax 713-500-3303

Additionally, Installment dates are noted within the School of Health Professions' Academic Calendar and on the [Office of the Registrar's site](#).

## Six Drop Rule

Under [TEC, §51.907](#), "an institution of higher education may not permit a student to drop more than six courses, including any course a transfer student has dropped at another institution of higher education." This statute was enacted by the State of Texas in spring 2007 and applies to students who enroll in a public institution of higher education as first-time freshmen in fall 2007 or later.

## Academic Common Market

The Academic Common Market is a tuition-savings program for college students in the 16 Southern Regional Education Board (SREB) member states who want to pursue degrees that are not offered by their in-state institutions. Students can enroll in out-of-state institutions that offer their degree program and pay the institution's in-state tuition rates. Hundreds of undergraduate and graduate programs are available for residents of [SREB states](#).

## Out of State Students and Non Resident Tuition and Considerations for Tuition Rebates

Tuition rebates may be available to certain undergraduate students while enrolled in the School of Health Professions. Eligible enrolled students must submit a scholarship application, and meet the identified criterion to be considered.

Each eligible student will be notified in the event that a tuition rebate has been awarded to their student account for the current academic year.

## Withdrawal and Refund

A student who wishes to withdraw from MD Anderson after completing registration for a semester must secure the dean's approval. The dean's approval to withdraw must be submitted to the registrar, where the student may request a refund of fees in accordance with MD Anderson policy. No fees will be repaid to anyone other than the payer, except on the payer's written order.

Students who withdraw from a program will be refunded a percentage of tuition and mandatory fees according to the current Fall, Spring and Summer schedules found on the [Office of the Registrar's Refund Policy page](#).

After the completion of the 8th week of classes, no student will be allowed to withdraw from a course; therefore the grade earned will become part of the official transcript. Students withdrawing from classes after the official census date and prior to the deadline will receive a grade of either *W* or *WF*. Refunds will be processed following withdrawal, and any refund will be mailed to the student.

Tuition and fees paid by sponsors, donors or scholarships will be refunded to the source.

## Medical Withdrawal

A medically ill student whose illness precludes class attendance may withdraw from MD Anderson effective the date and under the conditions specified at the time of the withdrawal. A student who requests a medical withdrawal must submit adequate written documentation from the treating physician to the registrar to withdraw the student under specified conditions.

## Military Withdrawal

Any student withdrawing from the school to perform active military services as a member of the U.S. Armed Forces or Texas National Guard must provide reasonable proof of the fact and duration of their active military service. Moreover, if a student elects to withdraw from the institution, several institutional procedures must be complete prior to the withdrawal. If eligible, the student may receive a refund in accordance with the academic calendar and posted dates for student refunds. If a student is eligible to receive an incomplete, the incomplete will follow normal registrar's procedures.

For more details regarding official withdrawal procedures, the student should notify the program director, Office of the Registrar and the UTHHealth student financial services offices accordingly. Previously earned coursework will be applied toward the student's academic records along with any standardized test scores, if applicable. The student will return to the academic status prior to withdrawal. Preceptorships will be accommodated as soon as possible for the military student.

## Scholarships

Competitive scholarships of \$1,000 will be awarded annually to selected students who have been accepted as degree candidates into one of the School of Health Professions degree programs.

## Eligibility

To be eligible for a scholarship ([TEC, §51.809](#)), an applicant must:

- Be accepted as a degree candidate into one of the School of Health Professions degree programs
- Have a minimum cumulative GPA of 3.0 on a 4.0 scale
- Demonstrate personal motivation for excellence in both character and academic achievement
- Submit a completed application by the date designated in the scholarship information made available to accepted students

## Selection Criteria

- Financial need
- Academic achievement (cumulative GPA)
- Leadership abilities (school and community)
- Professional goals and aspirations
- Academic transcript

Members of the Scholarship Selection Committee are appointed by the Program Directors and the Dean of the School of Health Professions. The committee consists of representatives from each of the School of Health Professions programs.

## Financial Aid

To be eligible for federal financial assistance, a student must be in good standing and making satisfactory academic progress toward their degree objective per Federal Regulations 34 *CFR*, [668.16\(e\)](#), [668.32\(f\)](#), and [668.34](#). Each financial aid applicant's academic progress will be officially verified at the end of each academic year using a qualitative and quantitative measure. Qualitative standard is the GPA that a student must have at each evaluation. Quantitative standard is the pace at which students must progress through their program to ensure that they will graduate within the maximum timeframe.

## Enrollment

Students must be enrolled at least half-time in a *degree-seeking program* that is accredited by an approved accrediting agency to be eligible for federal, institutional, and state financial aid. Enrollment hours are reviewed at the time of disbursement.

A student subject to selective service registration under federal law must file a statement that he or she has registered or is exempt before he or she is eligible to receive financial assistance that is funded by federal or state revenue in accordance with federal law and the provisions of [TEC, §51.9095](#).

### Student Financial Services

UTHealth  
7000 Fannin Street, Ste. 2220  
Houston, TX 77030  
713 500-3860

## Financial Assistance

Certain financial assistance offerings may be made available to eligible students administered by the [Texas Higher Education Coordinating Board \(19 TEC §22\)](#).

### Academic Advising

#### Credit by Exam

The School of Health Professions may accept courses accepted or taken at other institutions if deemed to include the appropriate content required for advancement in the programs. The student should request a course equivalency review from their program director or other designated faculty. Credit by Exam may include College Level Examination Program dual credit courses or School of Health Professions administered program examinations. A maximum of 8 SCH earned in this manner may be applied to the science prerequisites in biology, chemistry or physics.

The Program Director and/or Course Instructor will evaluate all official transcripts from regionally accredited institutions on an individual basis to determine if coursework is acceptable as credit towards the satisfaction of prerequisite courses at the School of Health Professions. Credit will not be given for experiential learning or for courses that duplicate prior credit given by another institution. Credit is awarded only in areas offered within the current curricular requirements of the institution and related to the student's program of study.

#### Credit Earned by Equivalency

Course equivalency credit is the substitution of credit for a course taken at another institution in place of a specific School of Health Professions course. This type of credit is only granted when the non-School of Health Professions course contains course content that is equivalent to the School of Health Professions course for which the student is requesting equivalency.

Courses must be upper-level courses taken at the university level. Courses in which grades lower than C are not eligible for credit by equivalency. Requests for obtaining course-equivalency must be submitted prior to the start of the semester using the approved Petition for Equivalency form.

#### General Academic Advising

Program directors and education coordinators further assist students in developing intellectual potential and exploring educational opportunities and life goals. Many people in the campus community contribute to the advising process, including faculty and staff. Through the relationship established between adviser and student within a friendly, helpful and professional atmosphere, a student has the opportunity to:

- Learn about educational options, degree requirements and academic policies and procedures
- Clarify educational objectives
- Plan for professional employment and life goals

Ultimately, the student is responsible for seeking adequate academic advice, knowing and meeting degree requirements and enrolling in appropriate courses to ensure orderly and timely progress toward a degree. Adviser contact each semester provides students with current academic information and promotes progress toward educational goals. MD Anderson supports that progress and encourages effective academic advising campus-wide.

### Alcoholic Beverages

#### Off-Campus

Students traveling or attending events related to their didactic or clinical education are viewed as representatives of the institution and are expected to maintain the highest standards of personal conduct. The abuse of alcoholic beverages on such occasions will be considered a violation of policy. Failure to comply with this policy will constitute grounds for disciplinary action, up to and including expulsion from the school.

#### On-Campus

In accordance with the UT System *Rules and Regulations of the Board of Regents*, no alcoholic beverages are allowed on campus without special approval.

### Rule 80102: Alcoholic Beverages Sec. 1 Prohibition

The use of alcoholic beverages is prohibited on property and in buildings owned or controlled by The University of Texas System or any of the institutions. However, the Chancellor of the UT System or the president of an institution may waive this prohibition with respect to any event sponsored by the UT System or any of the institutions. An event is sponsored if a budgeted office, department, or division of the UT System or any of the institutions is responsible for organizing the event, inviting attendees and paying expenses related to the event, except that such an event is considered to be sponsored even if an outside entity pays for the food and beverages at the event. Meetings or events organized and presented by registered faculty, staff, or student organizations are not events sponsored by the UT System or any of the institutions.

Section 1 immediately above does not apply to areas that are licensed under State law for the sale and service of alcoholic beverages, to a Special Use Facility during use by a noninstitutional individual, group, association, or corporation for purposes permitted by the [Regents' Rules and Regulations, Rule 80102](#), or to property, buildings, or facilities that are occupied by a third party pursuant to a written lease or occupancy agreement that does not specifically exclude alcoholic beverages.

### Appearance and Demeanor

Professional attire is especially important for students who have direct patient contact. In most cultures, professional caregivers are expected to present a uniform appearance. If a student's clothing differs greatly from the patient's perception of professional hospital attire, the patient's confidence in the institution's professional standards may be negatively affected.

It is the policy of the School of Health Professions to require personal cleanliness, good grooming/hygiene and appropriateness of dress while students are in classes and student laboratories in the hospital or representing the school while off campus. The nature of the student's clinical education requires cleanliness, neatness and a professional, business-like appearance—particularly in daily relations with patients, visitors and the public. The School of Health Professions follows the guidelines for personal appearance established by the institution. Individual written policies related to appropriate personal appearance and hygiene may be found within the policies of individual programs within the School.

#### Appearance and Demeanor Guidelines

Each student must always wear his or her ID badge when in class, on any part of the MD Anderson campus, or on clinical rotations. The ID badge must be worn on the upper portion of the body with the picture visible at all times. Students must also carry the emergency numbers card at all times. Good personal hygiene must be maintained. At times, students will be in close contact with patients, co-workers and fellow students. Students are required to adhere to departmental and/or clinical affiliate standards. Dress codes vary from program to program within the School of Health Professions, and each student is responsible for adhering to the dress code of his or her specific program. If a student is found to be in violation of the dress code policy, he or she will be instructed to return home to make the necessary adjustments to his or her attire or hygiene. Upon the second violation of the dress code, the student may be subject to disciplinary action. Projecting a professional image extends to the demeanor of each student. Students must be mindful of their behavior at all times, and are expected to exhibit a competent presence, good manners and a respectful, friendly and helpful attitude. Each student is a representative of MD Anderson and his or her program of study, and everything that a student says and does while on the premises or off campus reflects upon the institution and the school (Institutional Policy # ADM0261 (pdf)).

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## Approved Transcript Review Companies (Foreign Transcripts)

All applicants to the School of Health Professions must have their foreign transcripts evaluated by an agency approved by the [ASCP](#).

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## Class Attendance

Regular attendance at all learning activities is expected, and unsatisfactory attendance may lead to disciplinary action. Instructors are responsible for implementing the attendance policy of programs and must notify students of any special attendance requirements.

### Unexcused absences

Unexcused absences include tardies and early departures that are not scheduled and are not approved by the director. The director keeps a record of unexcused absences in each student's file. It is the responsibility of the director/faculty advisor to give proper counseling to the student as soon as a problem is evident.

If a student has had more than two unexcused absences in 60 days or three unexcused absences in 90 days, the director may take disciplinary action as stated in the policies of the individual programs.

### Absence Due to Illness

A student who is absent because of illness for three continuous days or more must submit a physician's statement indicating the nature of the illness, the requirement for absence and a release to return to school. Absences of three or more consecutive days will be reviewed by the program director and dean for the possibility of a leave of absence, requiring the student to repeat the classes or clinical rotations missed. Absences exceeding two classes or 50% of the course content within one course may necessitate a makeup period at the conclusion of the course, which might delay a clinical rotation or anticipated graduation date.

Students may be required to complete additional out of classroom assignments to make up work due to any absences. The program director in cooperation with the course instructor/s will review the factors for the absence and will determine the need for make-up work. It is the student's responsibility to contact the program official immediately following absenteeism or lateness regarding coursework or exam make-up. An unreported absence is considered an unexcused absence.

### Excused Absences

Excused absences will be handled on an individual basis by the program director. Scheduling of any elective physician appointment or other personal appointment must be cleared by the program director in advance of the date or the absence will be considered to be unexcused. Examples of excusable reasons for absence are illness, death or illness in the immediate family, jury duty, subpoena, religious observance, faculty-approved attendance at professional conferences or military service ([19 TAC, §4.4](#)).

In the case of absence due to military service, the student must be excused from regularly scheduled classes or other required activities if he or she is called to and/or participates in active military service for a reasonably brief period. In this case, students will be allowed to complete an assignment or exam within a reasonable time after the absence. If the student is aware of the need for an absence prior to the day of the absence, that student should notify the program director or an instructor in advance of the absence ([TEC, §51.9111](#) and [19 TAC, §4.9](#)).

### Religious Holidays

A student who is absent from a class or examination for the observance of a religious holiday may complete the work missed within a reasonable time after the absence if proper notice has been given. Notice must be given at least 15 days prior to the classes scheduled on dates the student will be absent.

For religious holy days that fall within the first two weeks of the semester, notice should be given on the first day of the semester. It must be personally delivered to the instructor and signed and dated by the instructor, or sent certified mail, return receipt requested. A student

who fails to complete missed work within the time allowed will be subject to the normal academic penalties.

Additional special regulations may be enacted through the normal legislative process and updated in this Catalog.

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## Comprehensive Emergency Notification System

It is the policy of MD Anderson that a comprehensive emergency notification system is in place that requires all employees (and students) to participate in the notification process in accordance with the content of this policy and any subsequent or additional emergency instructions provided by the institution (Institutional Policy # [ADM1097](#)).

All School of Health Professions students will be notified by the emergency notification system on campus, the Everbridge system. Emergency emails and text messages will be disseminated accordingly. The campus community will be notified of a significant emergency involving an immediate threat and campus evacuation, if required. Ongoing details are provided on the [Emergency Alert Information page](#).

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## Concealed Handgun Carriage on MD Anderson Campus

It is the policy of MD Anderson to respect the Federal and Texas Constitutions, both of which recognize Texas citizens' right to keep and bear arms. MD Anderson also recognizes the Texas Legislature's power to regulate the carriage of handguns.

This policy does not authorize the open carry of a handgun on MD Anderson campus, and the open carrying of a handgun is prohibited on the MD Anderson Campus (Institutional Policy # [ADM1254](#) (pdf)).

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## Conduct and Discipline

### Policy Overview

Students of MD Anderson are responsible for knowing and observing the University regulations concerning student conduct and discipline.

A student is defined as a person who

- Is enrolled at MD Anderson
- Is accepted for admission or readmission at MD Anderson
- Has been enrolled at MD Anderson in a prior semester or summer session and is eligible to continue enrollment in the semester or summer session that immediately follows
- Is engaged in prohibited conduct while meeting one or more of the criteria listed above

The terms "dean" and "program director" as used in this policy refer to the administrative officer(s) responsible for the administration of the disciplinary process. Primary responsibility and authority for student discipline lie with the dean and the program director, who are responsible for investigating charges of misconduct as well as assessing disciplinary sanctions, if appropriate. The dean is authorized by the Board of Regents to proceed with an investigation and disciplinary process as outlined in this policy, notwithstanding any action taken by other authorities ([Regents' Rules and Regulations, Rule 50101](#)).

The term "hearing committee" refers to a fair and impartial committee that has been selected to hear disciplinary charges, to make findings of fact and, upon the finding of a violation, to impose appropriate sanctions.

The MD Anderson campus is defined as all real property, buildings or facilities owned or controlled by MD Anderson.

All MD Anderson students are expected and required to:

- Obey federal, state and local laws
- Comply with the Regents' *Rules and Regulations*
- Comply with MD Anderson and the UT System *Rules and Regulations*

- Comply with directives issued by administrative officials of MD Anderson or the UT System in the course of their authorized duties
- Observe standards of conduct appropriate for an academic institution

Any student who engages in conduct that violates the above standards is subject to discipline whether the conduct takes place on or off campus and whether or not civil or criminal penalties are imposed for such conduct.

### Provisions: Conduct

Unacceptable conduct that would subject a student to disciplinary action includes, but is not limited to, the following:

- Engaging in scholastic dishonesty such as cheating, plagiarism, collusion, submitting another person's work or materials for credit, taking an examination for another person, acting in a manner that would give unfair advantage to himself or herself or another student or attempting to commit such act
- Engaging in unauthorized distribution of copyrighted materials, including peer-to-peer file sharing that may also subject students to civil and criminal penalties (*17 United States Code (USC), §506*)
- Illegally using, possessing or selling alcohol, drugs or narcotics
- Endangering the health or safety of another
- Obstructing, disrupting or interfering, individually or in concert with others, any teaching, educational, research, administrative, disciplinary, public service or other activity or public performance authorized by MD Anderson to be held on campus or on property or in a building or facility owned or controlled by MD Anderson or the UT System. Such behavior includes but is not limited to interrupting, modifying or damaging utility service or equipment; communication service or equipment; and computer hardware, programs, records or networks accessible through the MD Anderson's resources
- Engaging in speaking or writing that is directed to inciting or producing imminent lawless action and that is likely to incite or produce such action
- Engaging in the unauthorized use of property, equipment, supplies, buildings or facilities owned or controlled by MD Anderson or the UT System
- Engaging in hazing, singly or in concert with others, with or without the consent of a student, either on or off campus, is prohibited by state law (*TEC, §51.936*); Both the person submitting to the hazing and the person inflicting the hazing are subject to discipline; Knowingly failing to report hazing can subject one to discipline; Initiations or activities of organizations may not include features that are dangerous, harmful or degrading to any student and a violation of this prohibition renders both the organization and participating individuals subject to discipline
- Altering or assisting in the altering of any official record of MD Anderson or the UT System, or submitting false information or omitting information required for or related to application for admission, award of a degree or any official record; A former student who engages in such conduct is subject to a bar against re-admission, revocation of degree and withdrawal of diploma
- Defacing, mutilating, destroying or taking unauthorized possession of property, equipment, supplies, buildings or facilities owned or controlled by MD Anderson or the UT System
- Possessing or using any type of explosive, firearm, imitation firearm, ammunition, hazardous chemical or weapon as defined by state or federal law, while on campus or on any property or in any building or facility owned or controlled by MD Anderson or the UT System, unless authorized by federal, state or local laws

A student is also subject to discipline for prohibited conduct that occurs while participating in off-campus activities sponsored by MD Anderson or the UT System, including field trips, rotations or clinical assignments. A student who receives a period of suspension as a disciplinary penalty is subject to further disciplinary action for prohibited conduct that occurs during the period of suspension. A former student expelled or suspended for disciplinary reasons is prohibited from being on the MD Anderson campus as well as any campus of the UT System institution during the period of expulsion or suspension without prior written approval of the MD Anderson Senior Vice President For Academic Affairs or the chief student affairs officer of the institution at which the suspended student wishes to be present. In a request for such approval, the former student is required to disclose in writing

each institution from which the individual has been suspended or expelled and the conduct leading to the disciplinary action.

For more information related to this topic, "Prohibited Conduct", please refer to the [Examinations](#) policy outlined in the Academic Policies and Procedures section of "Policies and Procedures".

### Provisions: Sanctions

The following sanctions may be assessed by the Dean or the Dean's designee:

- Disciplinary probation
- Withholding of grades, official transcript and/or degree
- Bar against readmission
- Restitution or reimbursement for damage to or misappropriation of MD Anderson, the School of Health Professions or UT System property
- Suspension of rights and privileges, including participation in extracurricular activities
- Assignment of a failing grade for an examination, assignment or course and/or cancellation of all or any portion of a prior course credit
- Denial of degree
- Suspension from the institution for a specified period of time or until the student meets specified conditions. Students who are currently enrolled will be administratively withdrawn from all courses and refunds will not be issued.
- Expulsion (permanent separation) from the institution. Expulsion creates a permanent notation on the student's academic transcript.
- Revocation of degree and withdrawal of diploma
- Other penalties as deemed appropriate under the circumstances

If a student is found to be guilty of the illegal use, possession and/or sale of a drug or narcotic on the MD Anderson campus, the minimum penalty must be suspension from the institution for a specified period of time and/or suspension of rights and privileges.

### Procedure: Investigation

As stated in the Policy Overview, the Dean or designee is responsible for investigating allegations of misconduct, namely, that a student has engaged in conduct that violates the Regents' *Rules and Regulations*, the *Rules and Regulations* of MD Anderson or the UT System, instructions issued by an administrative official of MD Anderson or the UT System in the course of his or her authorized duties or federal, state and/or local laws.

If there is a more specific policy that specifies the procedures for investigation, such as the Sexual Harassment/Sexual Misconduct policy, that policy will govern; however, all the powers provided herein to the Dean for investigations involving student witnesses, including summons, interim disciplinary action and withholding transcripts, grades and degrees may be exercised by the investigator designated in that policy in consultation with the Dean.

Any student may be summoned by written request of the Dean for a meeting for purposes of the investigation and/or to discuss the allegations. The written request shall specify a place for the meeting and a time at least three weekdays after the date of the request if the request is sent regular mail, or at least two weekdays after the date of the request if the request is sent by email or hand delivered. The written request may be mailed to the address appearing in the records of the registrar, emailed to the student at the student's MD Anderson issued email address or hand delivered to the student. If the student fails to appear without good cause, as determined by the Dean, the Dean may bar or cancel the student's enrollment or otherwise alter the status of the student until the student complies with the summons. If the student failing to appear as directed in a summons is the student against whom charges are being reviewed, in addition to the above, the Dean may proceed with disciplinary action based upon other information available using the disciplinary procedures below. A student's refusal to accept delivery of the notice, failure to maintain a current address with the registrar or failure to read mail or email are not considered good cause for failing to respond to a summons.

The Dean will review the evidence, determine whether to proceed with charges, and, if so, determine the sanction appropriate to the charges. Before proceeding with disciplinary action, the dean will offer the student the opportunity to meet to provide a response to the charges

and, upon request, to review the available evidence supporting the charges.

### Procedures: Interim Measures

If the Dean finds the allegations against a student are not unfounded and pending a hearing or other disposition of the allegations against a student, the Dean may take such immediate interim disciplinary action as is appropriate to the circumstance when such action is in the best interests of MD Anderson, the School of Health Professions or the UT System. This includes, but is not limited to, a suspension and bar from the campus when it reasonably appears to the Dean from the circumstances that the continuing presence of the student poses a potential danger to persons or property, or a potential threat for disrupting any activity authorized by the MD Anderson or the School of Health Professions.

The Dean may also withhold the issuance of an official transcript, grade, diploma or degree to a student alleged to have violated a rule or regulation of MD Anderson, the School of Health Professions or the UT System or its institutions which would reasonably allow the imposition of such a sanction. The Dean may take such action pending disposition of the allegations or charge if the Dean has provided the student an opportunity to provide a preliminary response to the allegations and, in the opinion of the Dean, the best interests of MD Anderson, the School of Health Professions, of the UT System or the institution would be served by this action.

When interim disciplinary action has been taken by the Dean, a hearing of the charges against the student will generally be held within 10 days after the interim disciplinary action was taken; however, at the discretion of the Dean the 10-day period may be extended for a reasonable time period.

### Procedures: Disposition of the Charge

In any case, except in a case finding a violation of the Sexual Harassment/Sexual Misconduct Policy, where the accused student elects not to dispute the facts upon which the charges are based and agrees to the sanctions the dean assesses, the student may execute a written waiver of the hearing procedures and waiver of any appeals under the policy. This administrative disposition shall be final and there shall be no subsequent proceedings regarding the charges.

In any case finding a violation of the Sexual Harassment/Sexual Misconduct Policy, the case will proceed under the hearing procedures of this policy unless both the accused and the accuser agree to the terms of the administrative disposition and thus waive the hearing and appeals.

In any case where the accused student does not dispute the facts upon which the charges are based but does not agree with the sanctions proposed by the dean, the student may execute a written waiver of the hearing procedures yet retain the right to appeal the decision of the dean only on the issue of sanction (see Appeal section below). The appeal regarding the sanction must be made to the Vice President of Education (VPE), the president's designee.

If the student disputes the facts on which the charges are based, the dean will arrange for the facts to be heard and determined by a Hearing Committee.

### Procedures: Hearing

In those cases in which the accused student disputes the facts upon which the charges are based, such charges shall be heard and determined by a fair and impartial Hearing Committee.

In any case involving a violation of the Sexual Harassment/Sexual Misconduct Policy, the accuser will be provided the same rights and responsibilities outlined in this section as the accused including the right to have notice of the hearing.

The School of Health Professions is committed to providing fair and unbiased representatives each academic year to serve as hearing committee members in the school. Those persons will be selected from a nomination pool, in which the program directors make the nominations. Members can be selected as the nomination pool may consist of School of Health Professions Faculty, MD Anderson Staff, or Clinical Affiliates staff. Generally, each Hearing committee will contain at least three members from opposite program representation. The Hearing Committee pool will be populated annually. In the event of an appeal, Hearing committee participants members will be drawn

randomly from the pool to serve on the hearing committee. The Dean and the individual requesting an appeal will be allowed to strike names if demonstrated conflict of interest exist. The serving term for the hearing committee is a full academic year. During the first meeting, the chair of the Hearing Committee is selected based upon agreement within the committee a chair. The Chair will conduct all facets of the hearing committee.

When interim disciplinary action has been taken by the Dean, the student will be given the opportunity to have a hearing of the charges in accordance with the procedures below within 10 days after the interim disciplinary action was taken; however, if the Dean determines that there is good cause, the 10-day period may be extended for a reasonable period.

In cases other than those in which immediate interim disciplinary action has been taken, the accused student will be given at least a 10-day notice of the date, time and place for the hearing; the name of the Hearing Committee Members; a written statement of the charge(s); and a summary statement of the evidence supporting such charge(s). The hearing notice may also set a deadline by which the student must notify the Dean if he or she intends to be assisted by an advisor at the hearing. The notice will be delivered in person or mailed to the student at the address appearing in the registrar's records. A notice sent by mail will be considered to have been received on the third day after the date of mailing, excluding any intervening Sunday. The date for a hearing may be postponed by the Hearing Committee Chair for good cause or by agreement of the student and Dean.

The accused student may challenge the impartiality of a Hearing Committee Member(s) up to three days prior to the hearing by submitting the reasons for the challenge in writing to the Hearing Committee Member(s) through the office of the dean. If the Committee Member disqualifies himself or herself, a substitute will be appointed in accordance with the School of Health Professions' procedures.

On a hearing of the charges, the Dean or other School of Health Professions representative designated by the Dean has the burden of going forward with the evidence and proving the charges by the greater weight of credible evidence.

The Hearing Committee Chair is responsible for conducting the hearing in an orderly manner and controlling the conduct of the witnesses and participants in the hearing. The Hearing Committee Chair will rule on all procedural matters and on objections regarding exhibits and testimony of witnesses; may question witnesses; and is entitled to have the advice and assistance of legal counsel from the UT System Office of General Counsel (OGC).

The hearing will be conducted as follows:

1. Each party shall provide the other party a list of witnesses, a brief summary of the testimony to be given by each and a copy of documents to be introduced at the hearing at least five days prior to the hearing.
2. Each party has the right to appear, present testimony of witnesses and documentary evidence, cross-examine witnesses as permitted by the Hearing Committee Chair and be assisted by an advisor of choice. The advisor may be an attorney. If the accused student's advisor is an attorney, the dean's advisor may be an attorney from the UT System OGC. An advisor may confer with and advise the Dean or accused student, but may not question witnesses, introduce evidence, make objections or present argument to the Hearing Committee. In sexual harassment/sexual assault cases, the alleged victim shall have the right to be present throughout the hearing, to have an advisor present, to have irrelevant past sexual history with third parties excluded from the evidence; and to have a closed hearing.
3. The Dean may recommend a penalty to be assessed by the Hearing Committee, and may base the recommendation on past practice for violations of a similar nature, the student's past disciplinary record or other factors the Dean deems relevant. The accused student is entitled to respond to the Dean's recommendation.
4. The hearing will be recorded. At the request of the Sr. Vice President for Academic Affairs, the recording of the hearing will be transcribed and both parties will receive a transcript. If either party wishes to appeal the Hearing Committee's decision, the official record will consist of the recording of the hearing, the documents received in evidence and the decision of the Hearing Committee.

## Procedures: Appeal

A student may appeal a sanction assessed by the dean following the student's waiver of the hearing procedures, and either party may appeal the decision of the Hearing Committee. In sexual harassment/sexual misconduct cases, the alleged victim may pursue an appeal under the same procedure as the accused student. An appeal will be in accordance with the following procedures:

1. The appealing party must submit a written appeal stating the specific reasons for the appeal and any argument to the Senior Vice President, Academic Affairs, the president's designee ("Appeal Official") with a copy to the other party. The appeal must be stamped as received by the Appeal Official's office no later than 14 days after the appealing party has been notified of the sanction assessed by the Dean or the decision of the Hearing Committee. If the notice of sanction or decision is sent by mail, the date the notice or decision is mailed initiates the 14-day period for the appeal. The non-appealing party and in sexual harassment/sexual misconduct cases, the alleged victim, may submit a response to the appeal which must be received by the Appeal Official's office no later than five days after receipt of the appeal, with a copy to the other party.
2. In cases of appeal of the sanction assessed by the Dean following the student's waiver of the hearing procedures, the Appeal Official will review only the written arguments of the student and the Dean. In cases of appeal of the Hearing Committee decision, the Appeal Official will review only the record from the hearing. The Dean will submit the record from the hearing to the Appeal Official as soon as it is available to the Dean. At the discretion of the Appeal Official, both parties may present oral argument in an appeal from the decision of the Hearing Committee.
3. The Appeal Official may approve, reject or modify the decision in question or may require a reopening of the original hearing for presentation of additional evidence and reconsideration of the decision. It is provided, however, that upon a finding of responsibility in a case involving the illegal use, possession and/or sale of a drug or narcotic on the MD Anderson campus, the sanction may not be reduced below the required minimum.
4. The action of the Appeal Official will be communicated in writing to the student and the dean within 30 days after the Appeal Official receives the appeal and related documents. The decision of the Appeal Official is final.

## Records

The academic transcript of a student suspended or expelled for disciplinary reasons shall be marked with "Disciplinary Suspension" or "Expulsion" as appropriate. A permanent written disciplinary record will be kept for each student assessed a penalty of suspension, expulsion, denial or revocation of degree and/or withdrawal of diploma.

A record of scholastic dishonesty will be maintained for at least five years, and disciplinary records required by law to be maintained for a certain period of time, i.e. Clery violations, will be maintained for at least the time specified in the applicable law, unless the record is permanent in conjunction with the above stated sanctions.

A disciplinary record will reflect the nature of the charge, the disposition of the charge, the penalty assessed and any other pertinent information. This disciplinary record will be maintained by the office of the Dean. It shall be treated as confidential and will not be accessible to or used by anyone other than the Dean or other university official with legitimate educational interests, except on written authorization of the student or in accordance with applicable state or federal laws, court order or subpoena.

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## Confidentiality

It is the policy of the School of Health Professions to protect, to the extent permitted by law, confidential information such as information relating to patients, student records, matters pertaining to pending litigation and intellectual property/scientific discoveries.

Under the Health Information and Portability Accountability Act (HIPAA), students have an obligation to respect the privacy of all patients and to hold in confidence all patient information gathered either in the course of delivering care or informally observed. All health information is regarded as confidential and is made available only to authorized individuals or as required by law.

Student data is to be used only in the completion of official statistical reports and disclosed only to those persons with a business need-to-know or under legal requirements. Precautions will be taken to protect against inappropriate access, destruction or disclosure of information residing in computers and computer systems.

All new students will attend a confidentiality training session during their orientation to the program. They will be required to complete and sign a Confidentiality Agreement.

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## Conflict of Interest

It is the policy of the School of Health Professions to ensure that students do not engage in any business transaction or professional activity, or incur any obligation, financial or otherwise, that is in conflict with the proper discharge of their duties.

Students are prohibited from:

- Accepting or soliciting any gifts, favor, service or benefits that might reasonably tend to influence the student in his/her performance (*Regents' Rules and Regulations, Rule 80103*)
- Accepting outside employment or engaging in a business or professional activity that might require or induce the student to disclose confidential information
- Accepting outside employment or compensation that could impair the student's independence of judgment in the performance of his/her clinical and/or didactic responsibilities

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## Criminal Background Check

### Policy Overview

Criminal background checks were instituted by the School of Health Professions to meet clinical agency compliance with the Joint Commission on Accreditation of Healthcare Organizations (Joint Commission) standards pertaining to human resource management.

The Joint Commission requires verification of competency of all individuals who have direct contact with patients or employees. This includes students doing clinical rotations in the facility and/or off-site facilities. Competency extends beyond technical skills to an individual's criminal history.

A student is defined as a person who:

1. Is enrolled at MD Anderson, or
2. Is accepted for admission or readmission at MD Anderson

### Implementation

Criminal background checks are required for all newly admitted students and successful completion of a criminal background check is required for admission to all the School of Health Professions programs.

### Disclaimers

- Successful completion of a criminal background check for a School of Health Professions' program does not ensure eligibility for licensure or future employment.
- If they so desire, clinical agencies may establish more stringent standards to meet the regulatory requirements for their facilities.
- Clinical agencies may conduct additional background checks at their discretion.

### Allocation of Cost

The cost of the criminal background check will be the responsibility of the student.

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## Curriculum Changes

The School of Health Professions places primary responsibility for the quality and oversight of its educational programs with its program directors and primary faculty operating through the Curriculum Committee. At the program level, the program director is responsible for reviewing significant changes to current courses and determines the appropriate number of SCH.

## Approval Process

The program director initiates the approval process for substantive changes or additions by submitting the proposed new or revised changes to the Program Curriculum Committee. Upon approval by the Program Curriculum Committee, the requested changes are forwarded to the School of Health Professions Curriculum Committee. Significant changes or additions must receive written approval by the School of Health Professions Curriculum Committee and the Dean of the School of Health Professions prior to implementation.

Documentation and consideration of approval of new degree programs must receive written final approval by the President of the University and The Texas Higher Education Coordinating Board. The responsibility for obtaining this level of approval is the shared responsibility of the Dean of the School of Health Professions and the respective Program Director and primary faculty.

## Original Documentation

The Dean of the School of Health Professions will maintain original documentation of School of Health Professions Curriculum Committee minutes and academic changes and/or additions within the programs in the School of Health Professions. Additionally, copies of program-specific documentation will be held by the Program Director in the files of that particular program.

## Membership of School of Health Professions Curriculum Committee

The School of Health Professions Curriculum Committee shall consist of the Dean of the School of Health Professions and at least one full-time faculty member from each of the programs in the School of Health Professions. The Dean will appoint the members to this committee based on recommendations from the School of Health Professions faculty. Each committee member will serve a three-year term. The committee membership will elect a chairperson.

## Equal Educational Opportunity Statement

To the extent provided by applicable law, no person shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under, any program or activity sponsored or conducted by MD Anderson on the basis of race, color, national origin, religion, sex, age, veteran status or disability.

## Examinations

The following instructions govern the conduct of final examinations as well as other examinations given during the semester:

1. Instructors are responsible for advising students of the rules governing examinations and for supervising examinations in their respective classes. They, or their representatives, must remain in the examination room and take necessary actions to ensure an orderly examination and minimize the temptations and opportunities for cheating.
2. Students must be informed that all written work handed in by them is considered to be their own work, prepared without unauthorized assistance.
3. Students should be asked to cooperate in maintaining the integrity of examinations and encouraged to inform the instructor, without specifying the offenders, when cheating goes on in class.
4. Rules for test-taking:
  - o Remain in the examination room until the test is completed.
  - o Refrain from talking.
  - o All notes, books and electronic devices must not be accessible during the examination unless specifically approved by the instructor for that particular exam.
5. An instructor who suspects academic dishonesty must report the incident to the Dean.

For more information, please see the Provisions: Conduct section of the Conduct and Discipline policy.

## Gang-Free Zones

Premises owned, rented or leased by MD Anderson and areas within 1,000 feet 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 or older ([Texas Penal Code \(TPC\), §71.028](#)).

## Grades

### Overview

A student's standing in academic work is expressed by grades earned on class assignments and examinations.

### Grading scale

Number Range	Corresponding Letter Grade	Corresponding Grade Point
90-100%	A	4.0
80-89	B	3.0
75-79	C	2.0
60-74	D	1.0
Below 60	F	0.0

To receive credit for a course, an undergraduate student must earn a grade of C or above in both academic or clinical coursework. A student in the School of Health Professions must achieve a grade of C or above in all program courses to graduate. A grade below a C in any course may result in an academic dismissal from the respective program. This action is posted to the student's permanent record. During this period, the student will have the opportunity to exercise the appeal process outlined in the Grievance section of the School of Health Professions Policies and Procedures. A student who wishes to be readmitted after an academic dismissal from the respective program may apply to the program through the entire admissions process for the next academic year.

After a grade is reported to the registrar, it may not be changed unless an error was made by the instructor. Grades are given by semesters; however, in a course extending through two semesters, credit is not counted toward the degree until both semesters of the course are completed.

A student is expected to complete a course, including self-paced courses, in a single semester or summer session. If the course is not completed as expected, the student normally will not be given additional time to complete it or to do additional work to achieve a better grade. In rare instances, and subject to the approval of the instructor, a temporary delay of the final course grade, Incomplete (I), may be given. If no final grade is reported by the end of the next semester, excluding any intervening summer session, a grade of F is recorded as the final grade in the course. A student will not be able to graduate unless the symbol I is replaced by a passing letter grade.

Members of the staff are not authorized, without the academic dean's approval, to withhold a final grade or to defer reporting a final grade at the end of the semester other than by the use of the symbol I. If a grade is withheld without the dean's approval, the grade may not be added to the official records later without the written approval of the Dean.

### About Symbols

Under specific conditions, instructors may use symbols to report a student's standing in the semester's work. The symbol I is used to report a temporary delay of the final course grade for a student who has been given additional time to complete a course, and the symbol W to indicate that a student has officially withdrawn from MD Anderson. If a faculty member fails to report a grade for a student, the registrar will enter the symbol I to provide the student time to contact the faculty member and arrange for a final grade to be reported. If a final grade is not reported by the end of the next semester, excluding any intervening summer session, the registrar will change the I to an F. The registrar will notify the student when a grade change is reported.

## Symbol I: Temporary Delay in Reporting the Final Course Grade

Issuance of the symbol *I*, representing a temporary delay in reporting the final course grade, is approved under the circumstances described below and is at the discretion of the instructor.

If a student receives a symbol *I* in a course, the student must complete the requirements for the course and have the instructor report a final course grade on or before the last date for grade reporting in the next semester, excluding any intervening summer session, or an *F* will be recorded as the final grade in the course. The period for completion of the coursework may be extended only for unusual circumstances beyond the student's control as recommended by the instructor and approved by the student's academic dean. A student who has received an *I* in a course may not register for that course again until a final grade has been recorded unless the course is one that may be repeated for credit.

If the symbol *I* appears on a student's record, the course for which the symbol is recorded is not used in the calculation of the student's GPA. When the instructor assigns the final course grade and it is approved by the student's dean and reported to the registrar by the appropriate deadline, the grade is entered on the record and counted in computing the student's GPA. The symbol *I* remains on the record.

## Approved Uses of the Symbol I

An undergraduate student may, with the approval of the instructor, be assigned the symbol *I* in a course for one of the following reasons:

### Missing the Final Examination

The student is unable to take a final examination because of illness or other nonacademic reason. A physician's statement or other satisfactory verification is required.

### Incomplete Classroom Assignment

The student has not been able to complete the required class or laboratory assignments for a reason other than lack of adequate effort. A request for temporary delay of the final course grade because of incomplete class or laboratory work can be made only if the student has a passing average on the class or laboratory work already completed and has taken and passed the final examination (unless a final examination is not given in the course or the student is unable to take the examination for reasons indicated in the previous paragraph).

### Reexamination Petition

Only a student who has an average of C or above on all class and laboratory work submitted before the final examination may request a temporary delay of the final course grade because he or she failed the final examination, which is the examination given during the final examination period as printed in the official examination schedule. If the petition is denied by the instructor, the student's final course grade will remain as originally determined. If the petition is granted by the instructor, the grade on the reexamination will be substituted for the grade on the original examination in determining the student's final course grade, provided the student earns at least a C on the reexamination. If the grade on the reexamination is less than a C, a final course grade of *F* must be recorded.

The temporary delay of final course grade symbol is not issued for student or faculty convenience; it may be issued for the reasons cited above only in the case of compelling, nonacademic circumstances beyond the student's control.

## Improper Uses of the Symbol I

A student must not be assigned a temporary delay of the final course grade symbol to permit any of the following:

1. Time to prepare coursework in addition to that assigned to the entire class
2. Time to repeat the entire course
3. Opportunity to raise a grade for any reason other than the approved reasons cited above

## Computation of the Grade Point Average

The cumulative GPA for each student is calculated on the basis of all work undertaken at MD Anderson (including credit by examination, correspondence and extension) for which a letter grade is recorded.

Courses in which the symbol *W* or *I* is recorded are excluded in calculating the GPA.

## Graduation

General and specific requirements for degrees may be altered in successive catalogs. A student is bound by the requirements of the catalog in force at the time of his/her admission; however, a student must complete all requirements within seven years or be subject to degree requirements of subsequent catalogs. The student who is required to or chooses to fulfill the requirements of a subsequent catalog must have his/her amended degree plan approved by the Dean of the School of Health Professions.

## School of Health Professions Commencement Exercise

### Graduating Student Eligibility

- All program directors must submit the Degree Authorization Form for each student to be eligible to participate in the commencement ceremony.
- Students must be enrolled and in good academic standings to participate in the commencement exercise. A student who has withdrawn; been dismissed; or currently placed on probation may not participate in the commencement exercise.
- Completion of School of Health Professions and program degree requirements are required to be eligible to participate in the ceremony.
- If an ineligible student request to participate in the commencement exercise and the program director denies student's request, the student may appeal to the Dean.

### School of Health Professions Commencement Exercise Information

- Participation in the commencement exercise is strongly encouraged, however, participation is not a requirement for completion of a degree/diploma.
- The location; date and time; rehearsal information; attendee parking; graduate photo; and family instructions will be provided to students and faculty by the Dean's Office in late June.
- Personalization or alteration to the student cap and gown is prohibited for the commencement exercise.
- The School of Health Professions will provide sign language accommodation.

### Application and Procedure for Graduation

- Each student must order a Cap and Gown (from the graduation company) in order to participate in the commencement ceremony.
- Deadline: 2 months prior to the graduation date listed. Extras cap and gowns will not be ordered under any circumstances.
- All students must complete the School of Health Professions Clearance form, prior to the commencement ceremony, in order for the Diploma to be mailed.
- Student ID and Institutional materials must be returned to the Program Director.
- All students must apply for Graduation via the [myUTH site](#).
- All students must satisfy all financial obligations (fines, fees, etc.) with the bursar's office.
- The name that will be listed in the Commencement program is the students' legal name currently on file in the Office of the Registrar.
- International Students must contact the Visa Office regarding clearance procedures and final process documentation.

## Procedure for Visiting International Relatives Attending the Graduation

If you plan to invite a family member that resides outside the U.S.A., please follow the steps below:

1. All students will need to write down and submit the following information to the Dean's office so that we may prepare the appropriate letter.
  - **Student name** Please use the official name on your VISA, SS Card, UTHHealth System-Registrar Office, etc. Your name must match records to avoid delays.
  - Student phone number and email address
  - Program you are graduating from

- o **Name of each family member** Ensure names are spelled correctly to avoid delays.
  - o Home address where each family member resides outside the U.S.A. Please double check with the Embassy if you have questions to what address is acceptable to avoid delays
  - o List your relation to the relative Examples: Jane Doe - Sister, Jack Doe - Brother, Jamie Doe – Mother
2. Drop off the request in the Dean's office. All requests need to come from the student graduating. Please do not have family members emailing on your behalf.
  3. It will take approximately 5-10 business days to complete your request. You will be contacted when the letter is complete and ready for pick-up. You **MUST** pick-up the original letter as it cannot be sent in the mail or as an email attachment.

## Graduating with Honors

Based on cumulative GPA earned at the School of Health Professions recorded the last day of the Spring Semester in the graduating year. All students meeting the requirements outlined below will be recognized at the commencement ceremony:

- **Magna Cum Laude** 3.7 to 3.899 recognition with silver cords
- **Summa Cum Laude** 3.9 to 4.0 recognition with gold cords

## Outstanding Student of the Year

### Recognition with a Gold Sash

Each program will select one Outstanding Student of the Year, however, all students earning an MD Anderson 3.8 GPA and rank in the top one-third of the class on July 15 are eligible for consideration.

### Outstanding Student Assessment Criteria

The selected Outstanding Student:

- Exhibits outstanding leadership qualities
- Is highly motivated to work within the profession
- Is consistently reliable
- Demonstrates excellent communication skills
- Has an outstanding ability to work with others
- Effectively works independently
- Demonstrates a high degree of maturity
- Is an excellent example of MD Anderson's Core Values of Caring, Integrity and Discovery

### Selection Process and Criteria

1. The Program Faculty will rate each student using the Outstanding Student assessment criteria.
2. The Program Director will select adjunct, clinical and/or non-primary program faculty to evaluate the students creating a 1:1 ratio with primary School of Health Professions faculty.
3. The average assessment score will be added to the student's July 15 MD Anderson grade-point-average. The student earning the highest score will receive this recognition.
4. In the event there is a tie, the Program Director will make the final decision.

## Returning Student for Bachelor's Degree

A student who completes prerequisites within four years after completion of coursework at the School of Health Professions and returns to obtain a bachelor's degree must meet with their program director to obtain permission to proceed with the pending requirements to graduate and receive a degree and diploma.

## Grievance Procedure

### Academic Grievances

Academic appeals include those appeals related to grades and academic programs or degree requirements. Specific instructions are provided below for each type of academic appeal. In all instances, the School of Health Professions requires that every attempt be made to resolve such disputes informally through discussion among all relevant parties prior to initiating formal procedures.

#### Grade Appeals

All appeals relating to specific course grades require that students first seek a satisfactory solution with their primary course instructor/s. The student should request a conference with the program director within 14 days after the posting of grades. If this is not possible or the

program director cannot be reached, the student must send a written statement to the Dean of the School of Health Professions detailing the grounds for the appeal. The Dean must receive this written request within 21 days from the calendar date that the grade was posted.

If the matter is not resolved to the satisfaction of the student after meeting with the program director, he or she may submit a written appeal to the Dean within seven calendar days of the conference. The Dean will then initiate the appropriate procedures to review the appeal. The appeal process will include collection and review of all course grades, advising notes, explanation of extenuating circumstances, etc. The student will be notified in writing of the decision.

Within five working days of the student's receipt of the decision of the Dean, the student may appeal the Dean's decision to the VPE. If no decision is rendered by the Dean within 14 working days from the delivery of the written grievance to the Dean, the written grievance and grievance record may be sent by the student to the VPE. The VPE may take whatever action is deemed appropriate.

### Appeals of Academic Program or Degree Requirements

All appeals relating to a specific program require that students first seek a satisfactory solution with their program director. In the event that a satisfactory solution cannot be reached with the Program Director, the student may submit a written petition to the Dean of the School of Health Professions detailing the grounds for the appeal.

Following are examples of student appeals:

- Petitions pertaining to the general education requirements and/or general university requirements.
- Petitions requesting that transferred elective credit be accepted for degree requirements. These petitions must be accompanied by a catalog copy of the course descriptions.

### Non-Academic Grievances

This procedure is intended to provide students with an opportunity to formally grieve any perceived act, omission or issue of a nonacademic nature which adversely affects the grieving student and for which no other grievance or appeals procedure is provided in the UT System or in the policies or procedures of the School of Health Professions ([19 TAC, §1.112](#)).

1. The formal written grievance should be initiated as soon as possible.
  - o If the student chooses not to attempt informal resolution of a grievance, he or she must file a formal written grievance not more than 30 calendar days from the date that he or she knew or should have known of the offensive act or issue.
  - o If the student attempts informal resolution and then chooses to file a formal written grievance, he or she must file the written grievance within five working days from the last informal attempt at resolution.
  - o If the student does not use the informal resolution, then the formal written grievance must be filed not more than 30 calendar days from the date the student knew or should have known of the offensive act or issue.
2. The student may file the written grievance, setting out a complete description of the grievance and the proposed remedy.
  - o If the accused individual is a School of Health Professions employee, the employee's immediate supervisor receives the written grievance. The Dean can assist students in identifying the accused individual's supervisor so that the written grievance may be filed with the appropriate person.
  - o If the accused individual is a student, the written grievance is given to the appropriate Program Director of the student.
  - o Where the grievance does not involve an individual, the grievance may be filed with the administrator responsible for the program issue or issues involved. Copies of the grievance will be made available to the student who has filed the grievance, the director of his or her program, the individual accused of the act or omission that is the subject of the grievance, and the accused individual's supervisor and the administrator to whom the grievance is presented.
3. The administrator hearing the grievance may, at his or her discretion, hold discussions with or without the accused to hear and resolve the grievance, schedule a meeting between the student and the party accused, and/or involve other parties in facilitating a resolution of the grievance.
4. If the decision of the grievance officer is to affirm the grievance, any resulting directive to the accused must be presented in writing and

must be pursuant to a meeting between the accused and his or her supervisor. Denial of the grievance must also be in presented in writing.

5. Within five working days of the student's receipt of the decision of the Dean, the student may appeal the Dean's decision to the VPE. If no decision is rendered by the Dean within 14 working days from the delivery of the written grievance to the Dean, the written grievance and grievance record may be sent by the student to the VPE. The VPE may take whatever action is deemed appropriate.
6. Within five working days of the student's receipt of the decision of the VPE, the student may appeal the VPE decision to the Provost and Executive Vice President (EVP) of MD Anderson. The Provost and EVP may take whatever action is deemed appropriate.

The decision of the Provost and EVP of MD Anderson is final.

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## Hazing

Hazing in state educational institutions is prohibited by both state law (*TEC, §37.151* and *§51.936* et seq.) and by the [Regents' Rules and Regulations, Rule 50101](#). Individuals or organizations engaging in hazing could be subject to fines and charged with criminal offenses. Additionally, the law does not affect or in any way restrict the right of the University to enforce its own rules against hazing.

### Individuals

A person commits an offense if the person:

- Engages in hazing,
- Solicits, encourages, directs, aids or attempts to aid another person engaging in hazing,
- Recklessly permits hazing to occur, or
- Has firsthand knowledge of the planning of a specific hazing incident involving a student in an educational institution or has firsthand knowledge that a specific hazing incident has occurred, and knowingly fails to report that knowledge in writing to the Dean of the School of Health Professions or other appropriate officials of the institution.

### Organizations

An organization commits an offense if the organization condones or encourages hazing or if an officer or any combination of members, pledges or alumni of the organization commit or assist in the commission of hazing.

### Definition

The term hazing is broadly defined by statute to mean any intentional, knowing or reckless act, occurring on or off the campus of an educational institution, by one person alone or acting with others, directed against a student, that endangers the mental or physical health or safety of a student for the purpose of pledging, being initiated into, affiliating with, holding office in or maintaining membership in an organization.

Hazing includes, but is not limited to:

- Any type of physical brutality, such as whipping, beating, striking, branding, electronic shocking, placing of a harmful substance on the body or similar activity
- Any type of physical activity, such as sleep deprivation, exposure to the elements, confinement in a small space, calisthenics or other activity that subjects the student to unreasonable risk of harm or that adversely affects the mental or physical health or safety of the student
- Any activity involving the consumption of a food, liquid, alcoholic beverage, liquor, drug or other substance that subjects the student to an unreasonable risk of harm or that adversely affects the mental or physical health or safety of the student
- Any activity that intimidates or threatens the student with ostracism, that subjects the student to extreme mental stress, shame or humiliation, that adversely affects the mental health or dignity of the student or discourages the student from entering or remaining registered in an educational institution, or that may reasonably be expected to cause a student to leave the organization or the institution rather than submit to acts described in this subdivision
- Any activity that induces, causes or requires the student to perform a duty or task that involves a violation of the Penal Code (Note: the fact that a person consented to or acquiesced in a hazing activity is not a defense to prosecution.)

[Regents' Rules and Regulations, Rule 50101](#) provides that:

- Hazing with or without the consent of a student is prohibited by the System, and a violation of that prohibition renders both the person inflicting the hazing and the person submitting to the hazing subject to discipline.
- Initiations or activities by organizations may include no feature which is dangerous, harmful or degrading to the student, and a violation of this prohibition renders both the organization and participating individuals subject to discipline.

Activities which under certain conditions constitute acts that are dangerous, harmful, or degrading, in violation of Rules include but are not limited to:

- Calisthenics, such as sit-ups, push-ups or any other form of physical exercise
- Total or partial nudity at any time
- The eating or ingestion of any unwanted substance
- The wearing or carrying of any obscene or physically burdensome article
- Paddle swats, including the trading of swats
- Pushing, shoving, tackling or any other physical contact
- Throwing oil, syrup, flour or any harmful substance on a person
- Rat court, kangaroo court or other individual interrogation
- Forced consumption of alcoholic beverages either by threats or peer pressure
- Lineups intended to demean or intimidate
- Transportation and abandonment (road trips, kidnaps, walks, rides, drops)
- Confining individuals in an area that is uncomfortable or dangerous (hot box effect, high temperature, too small)
- Any type of personal servitude that is demeaning
- Wearing of embarrassing or uncomfortable clothing
- Assigning pranks such as stealing, painting objects, harassing other organizations
- Intentionally messing up the house or room for clean up
- Being called by a demeaning name
- Enduring yelling and screaming
- Requiring boxing matches or fights for entertainment

### Immunity

In an effort to encourage reporting of hazing incidents, the law grants immunity from civil or criminal liability to any person who, in good faith and without malice, reports a specific hazing event to the School of Health Professions Dean or other appropriate officials of the institution and immunizes that person from participation in any judicial proceeding resulting from that report.

Additionally, a doctor or other medical practitioner who treats a student who may have been subjected to hazing may make a good faith report of the suspected hazing activities to police or other law enforcement officials and is immune from civil or other liability that might otherwise be imposed or incurred because of the report.

The penalty for failure to report is subject to a fine or time in jail or both.

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## Health Information for Students

### UT Health Services

#### UT Health Services

7000 Fannin St, Ste 1620  
Houston, TX 77030

Conveniently located across the street from the METRO Transit Center at the corner of Fannin and Pressler in the Texas Medical Center. The building offers five floors of parking (to be paid by the student and is just minutes away from bus and rail stops.

#### Hours

7 a.m.-4 p.m., including the lunch hour.

#### Contact

Contact for appointments, billing and paperwork assistance.

[Maria Sandoval](#)  
713-500-3253  
UCT-1620

## Needlesticks

Refer to the [Blood and Body Fluids Exposure Checklist](#) (pdf).

## Counseling

MD Anderson School of Health Professions students seeking counseling should contact [The University of Texas Employee Assistance Program](#) (UTEAP) office, which provides students access to a variety of resources. Limited services are also available for students' dependents.

### University of Texas Employee Assistance Program

7000 Fannin St, Ste. 1670  
Houston, TX 77030  
713-500-3327 or 800-346-3549

## AIDS, HIV and HBV

MD Anderson recognizes the acquired immune deficiency syndrome (AIDS), human immunodeficiency virus (HIV) and hepatitis B virus (HBV) as serious public health threats. It is the policy of this institution to minimize risk to our patients and to provide the highest quality patient care. It is also the policy of this institution to make reasonable accommodations when disabilities limit the capacity of otherwise qualified applicants and employees as set forth in the MD Anderson's Americans with Disabilities Act (ADA) policies (Institutional Policies # [ACA0081](#) and # [ADM0286](#)). Any student or employee infected with HIV or HBV will not be permitted to perform exposure-prone procedures unless and until an Expert Review Panel determines that it would be medically appropriate to do so.

The existence of HIV or HBV infection will not be used by MD Anderson to determine suitability for admission to an educational program unless the program requires performance of exposure-prone procedures as identified by MD Anderson's Expert Review Panel. No employee or student will be denied benefits or provided reduced benefits under a health plan offered through the UT System on the basis of a positive HIV test result. A person with HIV or HBV infection shall not be denied access to MD Anderson because of HIV or HBV infection. A complete copy of the institution's policy regarding AIDS, HIV and HBV is available in the Office of the Dean (Institutional Policy # [ADM0348](#)).

It is also the policy of the institution to prevent the spread of infections between patients and faculty, trainees/students and other members of MD Anderson's workforce. See Management of Occupational Exposure To Blood or Body Fluids Policy (Institutional Policy # [ADM1068](#)).

Information concerning the HIV, AIDS or HBV status of students, employees, or patients, and any portion of a medical record will be kept confidential and will not be released without written consent, except where release is required or authorized by law, or as necessary to provide a reasonable accommodation or to investigate an occupational exposure ([TEC §51.919](#) and [§51.933](#)).

### Educational Materials Concerning AIDS/HIV

Refer to the HIV/HBV Policy (Institutional Policy # [ADM0348](#)).

## Contagious Diseases and Immunization Requirements

In the event that a student contracts or is exposed to a communicable disease, the student must notify the program director so that patient contact limitations are considered. All institutional policies regarding infection will be observed. Copies of these policies are available in each Program Office and in the Office of the Dean.

Federal regulations require that

- Students who are at risk for exposure to body/ blood fluids must be informed of the potential danger of contracting the hepatitis B virus and other infectious materials.
- The School of Health Professions must show documentation that each student has
  - been informed of the standard exposure precautions to be followed when working with patients,
  - received the hepatitis B vaccine or has declined the vaccine but understands the risk incurred by so doing and
  - completed the Immunization Form at the time of registration.

## Bacterial Meningitis

*April 2011 rule update:*

### Effective for incoming students as of Jan 1, 2012

The UT System has issued a [policy statement](#) (docx) regarding Texas Meningitis Laws, [TEC, §38.0025](#) and [§51.9191,92](#) that applies to students under the age of 30, requiring a meningococcal (bacterial meningitis ) vaccine or "booster" dose during the five-year period prior to but no later than ten days before the first day of the first semester students will enter that institution ([19 TAC, §21.610](#)).

### Policy Revision

*Effective October 1, 2013:*

- Students 22 years of age or older are not required to submit evidence of meningococcal meningitis vaccination.
- [Affidavit forms for exceptions](#) to vaccination for reasons of conscience, such as religious or philosophical belief can only be issued by the Texas Department of State Health Services (DSHS).
- The exception form from DSHS must be signed and notarized no more than 90 days prior to the first day of classes to be valid.

## Information about Meningitis

The School of Health Professions provides all new students with information about bacterial meningitis including:

- Symptoms
- How the disease is diagnosed
- How it is transmitted
- Consequences of the disease
- How it can be treated

All students must acknowledge receipt of this information at Orientation. To expedite this process, students may download, print and complete the acknowledgement form in advance of the orientation session by downloading the following form: [Important Information about Bacterial Meningitis – Acknowledgment](#) (pdf). For Orientation dates, please see the [Academic Calendar](#).

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## Health Insurance for Students

### Health Insurance

#### Purpose

It is the policy of the School of Health Professions to require all students entering into one of the School of Health Professions' programs to carry health insurance ([TEC, §51.952](#)). Students will be automatically assessed The University of Texas insurance plan but may have this fee waived by UTHHealth Auxiliary Enterprises if proof of comparable coverage is presented by the 12<sup>th</sup> class day.

Students enrolled in The University of Texas insurance plan may seek medical care at

#### UT Health Services

7000 Fannin St, Ste 1620  
Houston, TX 77030

#### Policy Statement

Beginning in 2002, the UT System Registrar's Office requires that all students enrolled in health institutions have health insurance coverage. Please see the Health Insurance section of the Health Information for Students policy in the Health Professions Student Catalog.

The student health insurance program is offered to registered students through a private company selected by the UT System office. This plan is designed to supplement student health services provided in the student clinics. In addition, it also assists with expenses not covered by the student services fee and those incurred outside that setting such as prescriptions, hospitalization, etc. Students have the option of enrolling their families in this plan at an additional cost. This plan is reviewed each year and revised to meet the current needs of the students.

In addition, the Regents requires all international students holding nonimmigrant visas and living in the U.S. to have coverage for repatriation and medical evacuation while enrolled at component institutions of The University of Texas. The required health insurance fee assessed by the University includes coverage for repatriation and medical evacuation. International students with coverage outside of the

plan can visit the [Auxiliary Enterprises site](#) or contact them via telephone 713-500-8400 or [email](#) to provide the information needed to waive the insurance fee and, if needed, purchase coverage for repatriation and medical evacuation ([Regents' Rules and Regulations, Rule 50402](#)).

### Students Enrolled in Field Experience Courses

All students enrolled in field experiences courses are covered by a certificate of liability insurance issued annually to the Board of Regents ([Regents' Rules and Regulations, Rule 50501](#)).

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## Intellectual Property

### Purpose

The Regents and the School of Health Professions encourage the development of inventions and other intellectual creations for the best interest of the public, the creator and any research sponsor. After securing available protection for the creation, the School of Health Professions will permit the disclosure of intellectual property by development and commercialization, by publication or both.

The basic policy of the board is to develop intellectual property primarily to serve the public interest, and usually this is best achieved by developing and commercializing the property by exclusive licensing. However, the public interest may sometimes be promoted best by granting nonexclusive licenses for the period of the patent. These determinations will be recommended and made in accordance with administrative procedures established by the board and the School of Health Professions.

MD Anderson's Intellectual Property Policy (Institutional Policy # [ADM0345](#)) has been formulated to clarify and protect the interests of all concerned.

### Application

This intellectual property policy applies to all candidates for degrees or certificates. As used in the context of this policy, the term "intellectual property" includes any invention, discovery, trade secret, technology, scientific or technological development, computer software or other forms of expression that is in a tangible form.

The board does not assert an interest in student, professional, faculty or non-faculty-authored works, scholarly works, art works, musical compositions and dramatic and non-dramatic literary works related to the faculty member's professional field regardless of the medium of expression, unless the work is commissioned by the board or is a work for hire.

### Rights

The board has rights in the intellectual property if the intellectual property is related to an individual's employment responsibility or has resulted from activities performed by the creator(s) on the School of Health Professions time, under any of the following circumstances:

- With support of state funds
- While using facilities or personnel of the School of Health Professions
- While engaged in research supported by a grant or contract from a federal agency, by a profit or non-profit entity or by a private gift to The University of Texas

However, a creator of intellectual property who does not fall within any of the previously mentioned circumstances may offer his or her creation to the UT System. In such case, the Dean of the School of Health Professions will recommend to the board whether the System should support and finance a patent application or other available protective measures and manage the development and commercialization of the property.

The UT System, with the cooperation of the School of Health Professions, will provide review and management services for patentable inventions as well as other intellectual property either by its own staff, through a related foundation or by other means.

### Protection

To obtain protection for intellectual property, an individual will complete the School of Health Professions Invention Disclosure form and submit it to the attention of the chair of the Intellectual Property Advisory

Committee. Copies of the form may be obtained from the Office of Legal Affairs and Risk Management.

### Assertion of Interest

The committee will review each disclosure and formulate recommendations regarding what interest, if any, the School of Health Professions has in the property, and whether the School of Health Professions and the board should assert their interest or permit the creator to proceed on his or her own with or without certain restrictions. The committee's recommendations will be forwarded to the president, who will forward his or her recommendations to the board.

If the School of Health Professions chooses not to assert its interest in a newly created intellectual property, and that recommendation is approved by The University of Texas Office of General Counsel and the executive vice chancellor for health affairs, the creator will be notified within 180 days of the date of submission.

If the School of Health Professions chooses to assert its interest, it will work with the UT System to pursue patent or other appropriate protection of the intellectual property and will bear the costs of doing so.

### Royalties

The School of Health Professions and The University of Texas royalties, as net royalties are defined by the board, will be shared between the School of Health Professions and the creator(s) according to the following formula:

- 50% — creator(s)
- 5% — school(s) of creator(s)
- 5% — department, division (or equivalent)
- 5% — laboratory of creators
- 5% — legal fees
- 30% — The University of Texas MD Anderson Cancer Center School of Health Professions Fund

In the event that no school or department is clearly involved in the original development, the Intellectual Property Advisory Committee will suggest a division consistent with the intention of the division shown above. The final decision will rest with the president.

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## Missing Student Notification

It is the policy of MD Anderson to encourage a safe and secure environment for patients, visitors, and faculty, trainees/students, and other members of MD Anderson's workforce. It is also the policy of MD Anderson to have a procedure in place regarding communications and notifications pertaining to the disappearance or abduction of a missing person (Institutional Policy # [ADM1003](#), Identification, Communications, and Notification of a Missing Person Policy).

Students are encouraged make contact with the UTHealth Police Department for further instructions about the reporting process. To report suspicious activity anonymously, contact [UTHealth Police Criminal Investigations](#) at 713-563-7781, 713-792-0368, or 713-794-3245. If the activity is an emergency or crime in progress, call 911.

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## Notification of Students Rights under FERPA

It is the policy of MD Anderson to protect the privacy and records access rights that apply to records maintained by or for MD Anderson about its current and former students by complying with the Family Educational Rights and Privacy Act (FERPA) at all times. FERPA [20 USC, §1232g](#), and [34 CFR, Part 99](#) provide students with the following rights with respect to their education records:

- Inspect and review the student's education records
- Consent to disclosure of the student's education records to third parties, except to the extent that FERPA authorizes disclosure without consent
- Request amendment of the student's education records to ensure that they are not inaccurate or misleading, or otherwise in violation of the student's privacy rights under FERPA
- Be notified of the student's privacy rights under FERPA

- File a complaint with the U.S. Department of Education concerning alleged failures by MD Anderson to comply with the requirements of FERPA. In accordance with the statute, the rights granted under FERPA and this policy may be exercised by (1) a Student who is 18 years of age or older, (2) a Student attending MD Anderson's School of Health Professions, or (3) a parent or legal guardian of a Student who is under 18 years of age. (Institutional Policy # [ACA1222](#), Student Rights Under FERPA (pdf)).

The Office of the Registrar maintains all official records of enrollment for School of Health Professions students. Please review the following information regarding the rights of a student on the [Office of the Registrar's site](#).

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## Observance of Religious Holy Days

*TEC*, §51.911(b) reads in part as follows:

“An institution of higher education shall excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.”

The notification shall be in writing and shall be delivered by the student personally to the instructor of each class, with receipt of notification acknowledged and dated by the instructor or by certified mail, return receipt request, addressed to the instructor of each class.

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## On-Campus Housing

MD Anderson does not provide housing for students. Admitted students into the School of Health Professions may submit an application to be considered for available housing with [UTHealth Auxiliary Enterprises](#). The student will be subject to the requirements as stated by UTHealth Auxiliary Enterprises.

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## Personal Record Information

### Name Change

MD Anderson policy is to maintain educational records under the student's full, legal name. Official documents such as diplomas and transcripts will not be issued bearing any other name.

A currently enrolled student may change the name on his or her permanent academic record by presenting a certified copy of the appropriate documentation to the registrar. Correcting the spelling or the proper sequence of the name requires a copy of the student's birth certificate. To change the name, the student must present a notarized request and a copy of the signed court order showing the new legal name. To assume the spouse's name following marriage, a student must present a notarized request and a copy of the marriage certificate. A student who wishes to discontinue use of the married name and resume use of the original family name or another name must present a divorce decree or signed court order showing restoration of the original, or other, name.

MD Anderson maintains student records under the name the student had when last enrolled. A former student may not change the name on his or her permanent academic record except by presenting a notarized request and a certified copy of the signed court order showing the authorized name change.

### Change of Address and/or Telephone Number

The student must give correct local and permanent addresses and telephone numbers to the Office of the Registrar, the Office of the Dean and to the program director. The student must notify these offices immediately of any changes in address or telephone number.

Students may change their addresses online via [myUTH](#).

Official correspondence is sent to the address last given to the registrar and program director. If the student has moved and failed to

correct this address, he or she will not be relieved of responsibility on the grounds that the correspondence was not delivered.

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## Public and Retail Space Use

It is the policy of MD Anderson to ensure that its public and retail spaces are appropriately utilized in a manner consistent with state law governing the use of state-owned property and all policies and regulations of the UT System regarding the use of facilities. The institution's facilities should be used only for purposes consistent with its mission and in a manner that is fair, reasonable and safe. In that regard, it is important to delineate the types of activities that may take place in the institution's Public Spaces. (Institutional Policy # [ADM0234](#), Public and Retail Space Use Policy (pdf))

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## Sexual Harassment

MD Anderson prohibits any form of sex discrimination or sexual harassment by any member of the university community against another member of the university community. Members of the community include administrators, faculty, staff, students, residents and fellows and other trainees.

Sexual harassment has profound and detrimental effects on individuals' work or academic performance as well as to their self-esteem. Additionally, sexual harassment often contributes to an offensive work or academic environment within the school/department that ultimately impedes MD Anderson's mission to be a progressive, humanistic institution of higher education in the health sciences.

Sexual harassment is a form of sex discrimination that is illegal under Title VII of the Civil Rights Act of 1964 and Title IX of the Education Amendments of 1972. Beyond its illegality, sexual harassment is a behavior that is contradictory to the mission and goals of MD Anderson, and will not be tolerated. Policies addressing sexual harassment or sexual misconduct and establishing procedures for resolving concerns or complaints about sexual harassment or sexual misconduct are MD Anderson's Sexual Harassment and Sexual Misconduct Prevention Policy (Institutional Policy # [ADM0285](#)) and the Non-Retaliation Policy (Institutional Policy # [ADM0254](#)).

### Definition of Sexual Harassment

Sexual harassment occurs in a variety of situations that share common elements:

- The inappropriate introduction of sexual activities or comments into the work or learning environment,
- Unwelcome sexual advances,
- Requests for sexual favors and
- Verbal, visual or physical conduct of a sexual nature.

Three criteria will determine whether or not an action constitutes sexual harassment:

1. If submission to the conduct is either an explicit or implicit term or condition of employment or student admission
2. If submission to or rejection of the conduct is used as a basis for an employment decision or student evaluation that affects the person who rejects or submits to the conduct
3. If the conduct substantially interferes with an affected person's work or academic performance or creates an objectively hostile work or academic environment

Sexual harassment may include men harassing women, women harassing men, men harassing men and women harassing women.

### Consensual Relationships

Consenting romantic and sexual relationships between a faculty member and student are considered inappropriate and unwise.

Faculty members exercise power over students, as do supervisors over employees, whether in evaluating them, making recommendations for their promotion or future employment or conferring on them any other benefits. Others may be adversely affected by the relationship in that it places, or appears to place, the faculty member or supervisor in a position to favor or advance one student's interest at the expense of others.

Consenting romantic and sexual relationships are in conflict with the relationship of authority that exists between a faculty member and his or her student and between a supervisor and his or her employee, and thus are viewed as damaging to the university environment.

Under conditions in which a relationship of authority exists between married individuals, a similar case for preferential treatment could be made. For these individuals, the nepotism rules are in force, as described in the [Regents' Rules and Regulations, Rule 30106](#), Nepotism.

Complaints lodged about consensual relationships by nonparticipating individuals will be treated as third-party sexual harassment complaints.

### Procedure for Filing a Sexual Harassment Complaint

Students or other persons who believe they have been subjected to Sexual Harassment or Sexual Misconduct, including sexual assault, should report the incident with reasonable promptness to their choice of at least one of the following:

- Their Academic Program Director and/or the Dean of the School of Health Professions
- MD Anderson Human Resources office of Equal Employment Opportunity ("HR-EEO")
- Sheri Wakefield, MD Anderson Title IX Coordinator in the office of the Associate Vice President for Academic and Visa Administration (AVA)

Immediate safety concerns or issues should be reported by calling 911 or 2-STOP (713-792-7868).

Someone from the HR-EEO office or AVA office will contact the person making the complaint as soon as reasonably possible to acknowledge receipt of the complaint and schedule an intake meeting. The Dean, Human Resources EEO office and the AVP of AVA office will work together to arrange any interim safety measures as appropriate pending the outcome of the complaint. Further details about how a complaint is investigated and resolved can be found in MD Anderson's Sexual Harassment Prevention Policy (Institutional Policy # ADM0285).

To the extent permitted by law, complaints and information received during an investigation, including the results of the investigation, will remain confidential. The investigator will balance the need for confidentiality with the responsibility of the institution to provide an environment free from sexual harassment. Relevant information will be provided only to those persons who need to know in order to achieve a timely resolution of the complaint.

All trainees (including students), faculty and employees are expected to cooperate in investigations of alleged sexual harassment. Any person who knowingly makes a false statement, or inappropriately discloses confidential information during an investigation will be subject to disciplinary action, up to and including dismissal from the School of Health Professions.

Any person who retaliates in any way against an individual for filing a complaint in good faith, or for participating in an investigation, will be subject to disciplinary action in accordance with the applicable disciplinary policy and procedure, up to and including dismissal from an educational program.

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## Smoking

It is the policy of School of Health Professions to safeguard the health of its students, employees, patients and visitors. Therefore, no one is allowed to smoke or use smokeless tobacco products on property owned or under the control of MD Anderson and the programs.

Any infraction of the non-smoking regulation is subject to disciplinary action up to and including termination.

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## Student Congress

The School of Health Professions Student Congress is an elected student body designed to represent all program disciplines in the School of Health Professions. Once elected, students must remain in good academic standing to maintain their position as a representative of their Program and the School.

The Student Congress consists of elected Congress persons who are representative of students from each of the programs in the School of Health Professions. Students elected to the Student Congress must remain in good academic standing in order to maintain their position in the Student Congress. The Student Congress is a representative body and will serve as a forum to enhance communications between the students at MD Anderson and at any distance learning sites, and the faculty and the administration of the School of Health Professions. The Student Congress will also elect students to represent the School of Health Professions on the UT System Student Advisory Council and the McGovern Center Student Advisory Council.

The Executive Committee elected by the Student Congress will serve as an advisory body to the dean, assisting the administration in reaching decisions on policy that concerns students enrolled in the School of Health Professions. The Executive Committee will provide leadership to the Student Congress by identifying activities that will broaden the intellectual, cultural and recreational opportunities open to the entire School of Health Professions student body.

The Student Congress will organize community outreach activities for the School of Health Professions student body such as "Adopt a Family," the donation of magazines throughout the year to hospital waiting rooms, and periodic food and clothing drives at MD Anderson and cities where distance learning sites are located. These activities are intended to further communications and relationships between the students at the School of Health Professions and the community.

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## Student Right to be Informed about Information Collected

With few exceptions, upon your request, you are entitled to be informed about the information MD Anderson collects about you.

- Under [Texas Government Code \(TGC\), §552.023](#), you are entitled to receive and review the information.
- Under [TGC, §559](#), you are entitled to have MD Anderson correct information about you that is held by us and that is incorrect, in accordance with the procedures set forth in UT System Business Procedures Memorandum 32.

The information MD Anderson collects will be retained as required by Texas records retention laws ([TGC, §441.180](#), et seq.) and rules. Different types of information are kept for different periods of time.

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## Student Right-to-Know, Campus Security Act and False Alarm or Report

### Fire Safety

While on MD Anderson campus, students should know the emergency plan for fire as issued by the MD Anderson Department of Health and Safety:

Know how to report a fire:

- Be able to locate exits, fire extinguishers and pull stations.
- Activate the nearest pull station Call: 9-911 (in-house phones) or 713-794-HELP (4357)

Remember R.A.C.E.

- Rescue
- Alarm
- Confine
- Extinguish if capable or Evacuate as directed

When using an extinguisher, remember P.A.S.S.

- Pull the pin
- Aim the hose or nozzle at the base of the fire
- Squeeze the handle
- Sweep the hose or nozzle from side to side

### Additional information

For further information, call the MD Anderson Environmental Health and Safety department at 713-792-2888. For non-emergency requests for UT Police, call 713-792-2890.

## Campus Security Act

In compliance with the Student Right-to-Know and Campus Security Act, 20 USC, §1092(a), (e) and (f), as amended, MD Anderson collects specified information on campus crime statistics.

Pursuant to the federal law, alleged victims of violent crime are entitled to know the results of campus student disciplinary proceedings concerning the alleged perpetrators. The University will make timely reports to the campus community on crimes considered to be a threat to students and employees and reported to campus police or local police agencies.

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

The annual campus crime statistics report will reference crimes which occur on property owned or controlled by the university. The university will publish in its annual security report, its policy regarding sex-related offenses, including sexual assault prevention programs, education programs to promote awareness of sex offenses, administrative disciplinary procedures and sanctions for offenders and counseling and student services for victims.

Visit The University of Texas Police Department Reports [page](#) to review the crime statistics on the Texas Medical Center campus.

## False Alarm or Report

Students are entitled to notification of state law relating to the false reporting of an emergency (e.g. fire, bomb threats, etc.) to the school or any other department of The University of Texas MD Anderson Cancer Center. Making a false report is a state jail felony and doing so may result in disciplinary action by the school, up to and including expulsion, as well as criminal charges.

### TPC, §42.06. False Alarm or Report

- (a) A person commits an offense if he knowingly initiates, communicates or circulates a report of a present, past, or future bombing, fire, offense, or other emergency that he knows is false or baseless and that would ordinarily:
  - (1) cause action by an official or volunteer agency organized to deal with emergencies;
  - (2) place a person in fear of imminent serious bodily injury; or
  - (3) prevent or interrupt the occupation of a building, room, place of assembly, place to which the public has access, or aircraft, automobile, or other mode of conveyance.
- (b) An offense under this section is a Class A misdemeanor unless the false report is of an emergency involving a public or private institution of higher education or involving a public primary or secondary school, public communications, public transportation, public water, gas, or power supply or other public service, in which event the offense is a state jail felony.

## Student Travel

MD Anderson supports the educational, research and service activities of its student by organizing and sponsoring certain approved travel activities. It is the policy of MD Anderson to promote safe travel practice for students. (Institutional Policy # ACA0019, Student Travel Safety Policy)

## Students with Disabilities

The School of Health Professions determines, establishes and publishes educational prerequisites and physical/mental skills necessary to perform in the respective clinical and didactic program. See the Admissions section of "Policies and Procedures" for general physical/mental skills necessary for performance in all of the programs, and the individual program catalog sites for physical/mental skills needed for specific programs.

The school is committed to providing reasonable accommodations for students with disabilities. Students who have disabilities that require accommodation should discuss these with the program director early in the year. Documentation may be required to verify certain disabilities.

## Substance Abuse

### Policy Overview

MD Anderson is committed to maintaining an environment that is free from substance abuse, and its primary concern related to substance abuse among students is prevention and treatment. The institution provides educational programs to inform its community about the physical and psychological problems associated with substance abuse, as well as pertinent state and federal laws. MD Anderson recognizes that substance abuse is a treatable condition and, as an institution dedicated to health, facilitates the treatment and rehabilitation of this condition.

MD Anderson encourages impaired students, residents and fellows to seek help voluntarily and to assume responsibility for their professional and personal conduct. A student suspected of being under the influence may be removed from the classroom or clinical setting and referred for laboratory testing for the presence of illegal drugs or alcohol in the body. In cases in which a student causes harm to or endangers the safety of himself or herself or others, the student will be subject to disciplinary action. (Safe and Drug Free Schools and Communities Act, 20 USC, §7101-7165).

The following are prohibited:

- The purchase, manufacture, distribution, possession, sale, storage or use of an illegal drug or controlled substance while on the premises or property owned or controlled by the university or in vehicles used for university business.
- Use of alcohol, an illegal drug or a controlled substance that occurs while not on university property or in university vehicles, but that adversely affects the safety of other students, employees, visitors or patients. This includes the use of alcohol at authorized official university functions or at an authorized university site that may adversely affect the safety of any other person.
- Use of prescription or over-the-counter medications without heed to warnings about impact on performance or safety.
- Distribution to others of drugs or controlled substances obtained pursuant to a prescription, except by a duly licensed and certified person, while in or on premises or property owned or controlled by the university.
- Arrival to class or the clinical setting under the influence of illegal drugs or alcohol.
- Arrival to class or work under the influence of legal drugs to the extent that there is an adverse effect on the student's ability to perform.

Failure to comply with this policy by any student will constitute grounds for disciplinary action.

Any student who is convicted under a criminal statute for a drug-related offense is required to notify the dean and program officer or appropriate representative not later than five days after such conviction.

### Sanctions

The following are the sanctions for students convicted of substance-abuse-related crimes:

- Any student convicted of illegal use, possession and/or sale of a drug or narcotic on campus shall be dismissed.
- A felony conviction of a violation of any criminal drug statute for use, possession, dispersion, distribution or manufacture of an illegal drug on MD Anderson premises will result in expulsion.

## Summons and Official Communications

### Summons to Administrative Offices

A summons to the office of any administrative officer must be observed. Failure to respond to a summons may result in suspension from MD Anderson. In most programs, a summons to the Dean is sent by mail, so it is important that the student keep the Dean, Registrar and Program Director informed of current address information.

## Official Communications with MD Anderson

Students are expected to attend to business matters with MD Anderson during regular working hours on Monday through Friday. A student who is unable to conduct business personally should contact the appropriate office by mail or telephone. For purposes of proper identification and clarity, written communications should include the student's name, student identification number and local address (if applicable).

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## Syllabi, Faculty Credentials and Textbook Information

All course information including textbook information is provided on the [Office of the Registrar](#) page related to course description information upon registering for a course. Upon actual course registration, course syllabi are made available within the learning management system of the institution.

School of Health Professions [textbook information](#) (pdf)

Appointed faculty in the school maintain credentials listings on the following institutional pages:

- School of Health Professions [appointed faculty and staff](#)
- MD Anderson Faculty [Curriculum Vitae Institutional Search](#)

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## Texas Common Application System

During this current catalog, the School of Health Professions does not utilize the common application form for freshman-level and transfer students. The School of Health Professions currently allows applicants to submit online applications for consideration with the [Office of the Registrar](#). The School of Health Professions is currently making preparations to be included in the common application system.

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## Transcripts and Diplomas

### Transcripts

With proper identification, a student may receive an official transcript in person, online via [myUTH](#), or by mail. The transcript includes only the academic record accumulated at MD Anderson. Unofficial copies of transcripts from other institutions are furnished by the registrar in accordance with the Texas Open Records Act (a fee may be charged).

A transcript is a comprehensive record of an individual's academic progress; it contains all the significant facts about a student's admission, academic level and scholarship. No partial or incomplete record (e.g., with grades of *F* omitted) will be issued. A student who owes a debt to MD Anderson may not be able to obtain an official transcript until the debt is paid.

Texas law provides criminal penalties for forgery of a transcript or similar document.

### Diplomas

A graduate of MD Anderson may purchase a diploma to replace one that has been lost or destroyed. If purchased more than one year after the original diploma was issued, the replacement will bear the reissue date below the date the degree was awarded. The signatures of MD Anderson and the UT System officials may not be the same as those on the original diploma because the signatures of former officials are not maintained on file. Additional copies of an original diploma also may be purchased at the time of issue. The student will be required to pay a fee for the additional copy.

A student who requests a new diploma based on a change of name must pay the fee unless the name change was submitted by the deadline set by the registrar or a postponement of the deadline was granted.

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## Vehicles on Campus

Students enrolled in the School of Health Professions may obtain parking contracts with either the Texas Medical Center [parking office](#) or [surface lots](#) owned by MD Anderson. The contract holder must give the parking office current and accurate information in accordance with

institutional policies and Texas Medical Center regulations (Institutional Policy # [ADM0230](#), Parking Policy (pdf)).

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## Veterans Education Counselor's Program

Students seeking information regarding the [Veterans Education Counselors program](#) should contact the Office of the Registrar to support their endeavors for veteran's educational opportunities. For more details, please contact [Winston Matranga](#) coordinator of VA/Hazelwood benefits at UTHealth.

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## Withdrawal and Refund

### Withdrawal from the School of Health Professions

A student who wishes to withdraw from the School of Health Professions after completing registration for the semester in consideration must first secure the dean's approval. In order to be reimbursed for tuition already paid, the student must submit this request for withdrawal to the School of Health Professions Registrar prior to the 12<sup>th</sup> class day.

Students who withdraw from a program will be refunded a percentage of tuition and mandatory fees according to the current Fall, Spring and Summer schedules found on the Office of the Registrar's [Refund Policy page](#).

### Enrollment

Students can enroll in classes through the end of the first week of class in the current semester.

### Adding and dropping courses

Students can make schedule changes—add/drops—up until the end of the 12<sup>th</sup> class day of the current semester. Up until this date, students will receive a refund or have additional charges added to their account based on the number of semester credit hours involved.

### Withdrawal from a course before the grade earned becomes part of the student record

Course must be dropped prior to the 12<sup>th</sup> class day. After the completion of the eighth week of classes, no student will be allowed to withdraw from a course; therefore the grade earned will become part of the official transcript. Students withdrawing from classes after the official census date and prior to the deadline will receive a grade of either *W* or *WF*.

### Medical Withdrawal

A medically ill student whose illness precludes class attendance may be withdrawn from MD Anderson effective the date and under the conditions specified at the time of the withdrawal. A student who requests medical withdrawal must submit adequate written documentation from the treating physician to the Dean of School of Health Professions. The Dean will review materials and submit a recommendation to the Office of the Registrar requesting the student be withdrawn.

## Degrees Offered at the School of Health Professions

The School of Health Professions offers degree programs that are listed below. Students must be accepted into one of these programs before entering the School of Health Professions. If students desire to change programs, they must withdraw from the School of Health Professions and re-apply.

See admission criteria for more information on each program.

### Graduate Degrees

- [Diagnostic Genetics](#)
- [Radiologic Sciences](#)

### Undergraduate Degrees

#### Radiologic Sciences Programs

The Radiologic Sciences Programs do not have a common core curriculum. Please refer to each program section for each programs' course listings.

- [Diagnostic Imaging](#), Emphases in CT, IR and MRI
- [Diagnostic Medical Sonography](#)
- [Medical Dosimetry](#)
- [Radiation Therapy](#)

#### Hybrid Online Programs

Flexible options include part-time, full-time and hybrid on-line enrollment. Please contact the respective [Education Coordinator](#) for more information on each programs' course listings.

- [Cytogenetic Technology](#)
- [Diagnostic Imaging](#), Emphases in Education and Management
- [Health Care Diversity, Disparities and Advocacy](#)

#### Laboratory Sciences Programs

- [Clinical Laboratory Science](#)
- [Cytogenetic Technology](#)
- [Cytotechnology](#)
- [Histotechnology](#)
- [Molecular Genetic Technology](#)

The Laboratory Sciences programs admit students at the Junior Year level and share a Junior Year curriculum consisting of:

- Laboratory sciences core courses
- Program-specific core courses
- Program-specific elective courses

#### Laboratory Sciences Core (8 SCH)

All laboratory sciences program students must take the following courses.

HS 3101	Basic Techniques Laboratory	1
HS 3210	Laboratory Mathematics	2
HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4310	Medical Microbiology	3

#### Program-Specific Cores

##### Clinical Laboratory Science (30 Total SCH)

HS 3102	Molecular Techniques Laboratory	1
HS 3270	Critical Thinking in Health Professions	2
HS 3300	Medical Immunology	3
HS 3310	Intro to Quality in Health Care	3
HS 3330	Pathology of Body Fluids	3

HS 3333	Statistics	3
HS 3340	Research Methods	3
HS 4111L	Medical Microbiology Laboratory	1
HS 4300	Pathophysiology for the Health Professions	3

##### Cytogenetic Technology (30 Total SCH)

HS 3120	Introduction to Cytogenetics	1
HS 3270	Critical Thinking in Health Professions	2
HS 3300	Medical Immunology	3
HS 3320	Medical Genetics	3
HS 3330	Pathology of Body Fluids	3
HS 3333	Statistics	3
HS 3340	Research Methods	3
HS 4111L	Medical Microbiology Laboratory	1
HS 4300	Pathophysiology for the Health Professions	3

##### Cytotechnology (30 Total SCH)

HS 3110	Medical Terminology	1
HS 3254	Immunohistochemistry	2
HS 3300	Medical Immunology	3
HS 3320	Medical Genetics	3
HS 3330	Pathology of Body Fluids	3
HS 3333	Statistics	3
HS 3340	Research Methods	3
HS 4111L	Medical Microbiology Laboratory	1
HS 4300	Pathophysiology for the Health Professions	3

##### Histotechnology (25 Total SCH)

HS 3110	Medical Terminology	1
HS 3300	Immunology	3
HS 3310	Introduction to Quality in Health Care	3
HS 3320	Medical Genetics	3
HS 3340	Research Methods	3
HS 4111L	Medical Microbiology Laboratory	1
HS 4300	Pathophysiology for the Health Professions	3

##### Molecular Genetic Technology (32 Total SCH)

HS 3203	Advanced Molecular Techniques	2
HS 3300	Medical Immunology	3
HS 3310	Introduction to Quality in Healthcare	3
HS 3320	Medical Genetics	3
HS 3330	Pathology of Body Fluids	3
HS 3333	Statistics	3
HS 3340	Research Methods	3
HS 4111L	Medical Microbiology Laboratory	1
HS 4300	Pathophysiology for the Health Professions	3

# Clinical Laboratory Science

The clinical laboratory scientist is an essential member of the health care team, performing a myriad of laboratory procedures aimed at the diagnosis and treatment of disease.

## Degree Offered

Bachelor of Science in Clinical Laboratory Science

## Program Administration

**Program Director** Brandy Greenhill, Dr.P.H., MLS(ASCP)<sup>CM</sup>

**Medical Advisor** Jeffery Tarrand, M.D.

## Program in Clinical Laboratory Science

### Mission

The MD Anderson Cancer Center Program in Clinical Laboratory Science, in concert with the mission and vision of The University of Texas MD Anderson Cancer Center, is committed to the education of technically and academically competent graduates prepared to meet the immediate and future needs of the Clinical Laboratory Science profession.

### Goals

The faculty of the Program in Clinical Laboratory Science is committed to:

- Providing the didactic and clinical instruction that offers the graduate the opportunity to prepare to:
  - Perform procedures in all areas of the clinical laboratory
  - Integrate and correlate laboratory data
  - Solve problems relating to the production of laboratory results
- Maintaining an effective program of student development and learning
- Leading the student in developing an understanding and appreciation for a total quality management program, the skills necessary to establish quality control measures, and to making appropriate decisions to maintain accuracy and precision
- Meeting the future needs of the Clinical Laboratory Science profession by including:
  - State-of-the-art procedures and instrumentation
  - Courses that offer career alternatives
  - Opportunities to participate in research and development of molecular techniques
- Developing the framework for the graduate to maintain and grow in professional competence throughout his lifetime by promoting participation in continuing education activities of the laboratory, MD Anderson and the community
- Communicating the necessity of obeying a professional code of conduct toward patients, visitors and all health care professionals and of demonstrating the highest regard for human dignity and life

### Objectives

- The Program in Clinical Laboratory Science is designed to prepare students to perform clinical laboratory analysis, make appropriate decisions and solve problems to become successful entry-level clinical laboratory scientists.
- The program provides instruction and training in all the major areas of the clinical laboratory through both didactic and clinical training. Most students enter the program to pursue a Bachelor of Science degree.
- The clinical laboratory scientist is an essential member of the health care team, performing a myriad of laboratory procedures aimed at the diagnosis and treatment of disease.
- The technical procedures and complex instruments used in modern laboratory medicine require well-educated and technically proficient scientists. Clinical laboratory scientists are problem solvers, technologists who use their knowledge and technical skills to operate and repair laboratory instruments, monitor quality control programs, produce high-quality patient test results and correlate test results with disease processes.
- The primary goal of the Clinical Laboratory Science program is provide the community with competent, entry-level clinical laboratory

scientists (medical laboratory scientists) who are prepared to meet the qualifications for certification in their profession.

- While many scientists choose to work in hospital laboratories, others opt to develop new testing procedures in diagnostic and research laboratories. Scientists with leadership ability and administrative skills manage the laboratory operations. Those interested in computer technology use their laboratory knowledge and skills in the management of laboratory information systems. Others provide educational programs to prepare the scientists for the future. There are even opportunities for scientists to serve as self-employed consultants.

## CLS Competencies

The CLS curriculum offers the student the opportunity to obtain the following competencies:

1. Accurate application of mathematic principles in the clinical laboratory science domain of practice
2. Appropriate interpersonal and public speaking skills in the clinical and academic setting
3. Appropriate oral and written communication in the clinical and academic setting
4. Appropriate computer skills in the clinical and academic setting.
5. Synthesis of information from primary and secondary sources using recognized research techniques
6. Critical reading and writing strategies to evaluate, interpret and analyze non-fiction, academic and professional readings
7. Knowledge of quality assurance through application of quality control and required documents for regulatory compliance
8. Correlation of disease processes with appropriate assays for diagnosis
9. Application of management principles in the clinical laboratory science domain of practice
10. Ability to collect specimens and determine the criteria of acceptability and rejection
11. Ability to operate instrumentation, troubleshoot and document preventive maintenance
12. Ability to describe the theory and principle of operation of the test methodology for all areas of the clinical laboratory
13. Ability to perform appropriate assays with the ability and accuracy to determine the accuracy of results from interference substances
14. Ability to correctly perform appropriate manual procedures when necessary
15. Ability to apply knowledge of test limitations and select appropriate corrective action for out-of-limits situations
16. Ability to organize workflow to make efficient use of time and materials
17. Ability to differentiate between appropriate and inappropriate results by recognizing normal, abnormal and critical values and taking appropriate action where necessary

## Selection Process

Admission is dependent on factors that include

- Cumulative GPA
- Math and Science GPA
- Personal qualities such as maturity and professional goals based on the personal essay, interview and reference letters
- Ability to meet the School of Health Professions non-academic technical standards.
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

## Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

## Program Admission Requirements

Students pursuing a Bachelor of Science degree typically enter at the Junior level; however, there are a limited number of entry positions available at the Senior level on a case by case basis. Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Program of Clinical Laboratory Science must satisfy the following requirements for admission.

**All prerequisite coursework** must be from an accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**A minimum GPA** of 2.5 on a 4.0 scale both overall and in science courses is required to be considered for admission

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 60 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 18 SCH. Within these 60 SCH, the following 24 SCH must be included:

- \*4 SCH in Organic Chemistry II or Biochemistry
- \*8 SCH in Biological Sciences that may include Biology, Human Anatomy and Physiology with or without laboratory components
- \*12 SCH in Chemistry to include General Chemistry I and II, and Organic Chemistry I

*\*Note: 12 of the above 24 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

### For the One-Year Program

Students must complete a minimum of 90 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 48 SCH. Within these 90 SCH, the following must be included:

- 3 SCH of upper-level Immunology
- 4 SCH of upper-level Microbiology course with laboratory
- \*4 SCH in Organic Chemistry II or Biochemistry
- \*8 SCH in Biological Sciences that may include Biology, Anatomy and Physiology with or without laboratory components
- \*12 SCH in Chemistry to include General Chemistry I and II and Organic Chemistry I
- 15 SCH of upper-level courses

*\*Note: 12 of the above 24 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

### Advanced Placement

The School of Health Professions may accept and/or award credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty is

consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to School of Health Professions courses with the results being reported to the Registrar.

### Graduation

Each candidate for graduation with a baccalaureate degree in Clinical Laboratory Science must have completed a minimum of 135 SCH of coursework. Within this requirement, the students must have completed the following:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must have been earned at the School of Health Professions

Graduation occurs mid-August. Upon graduation, students are eligible to take the national certification exam given by the [ASCP](#). This exam is given throughout the year. Please check with the program director for application deadlines.

Upon passing the certification examination, the student is considered a certified Medical Laboratory Scientist. The awarding of the degree is not contingent upon a student passing a national certification examination.

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## Curriculum

The Program in Clinical Laboratory Science is a highly intensive course of study composed of didactic and clinical training. Didactic courses are presented in clinical hematology and hemostasis, clinical chemistry, clinical microscopy, microbiology, immunohematology, immunology, molecular diagnostics, human tissue typing and management.

The course of study will offer the student the opportunity to obtain the necessary:

- Fundamental knowledge to enter the profession as a capable medical laboratory scientist
- Highly specialized skills that will broaden career opportunities

During the clinical phase of instruction, training and supervision are provided at leading clinical laboratories at sister medical institutions within the Texas Medical Center and beyond, in order that students may develop expertise in a variety of settings and experience the breadth of opportunity available to Clinical Laboratory Scientists.

### Current Affiliations

During the clinical phase of instruction, training and supervision are provided in affiliated clinical laboratories. Visit the [Clinical Laboratory Science Program page](#) for a list of current affiliations.

### Accreditation

The MD Anderson Program of Clinical Laboratory Science is accredited by and has confirmed its curriculum to the standards published and monitored by [NAACLS](#).

### Course Listings

#### Junior Year

Refer to the [Junior Year for Laboratory Sciences](#) section of this catalog.

#### Senior Year\* (39 SCH)

CL 4200	Core Laboratory Techniques Laboratory	2
CL 4210	Microbiology Student Laboratory	2
CL 4231	Immunohematology Laboratory	2
CL 4260	Capstone Seminar	2
CL 4320	Diagnostic Microbiology	3
CL 4321	Clinical Microbiology	3
CL 4330	Immunohematology	3

CL 4332	Clinical Immunohematology	3
CL 4345	Hemostasis	3
CL 4400	Clinical Chemistry	4
CL 4440	Clinical Hematology	4
CL 4530	Clinical Core Rotation	5
HS 4371	Management and Education	3

\*Students entering the School of Health Professions for the first time at the Senior level must take the following additional required courses:

- HS 3300 Medical Immunology (or equivalent course)
- HS 3330 Pathology of Body Fluids
- HS 4100 Health Care Ethics
- HS 4101 Diversity and Cultural Competence

# Cytogenetic Technology

Cytogenetic technologists study the structure of human chromosomes and the role of specific changes in the diagnosis and monitoring of acquired and inherited abnormalities.

## Degree Offered

Bachelor of Science Degree in Cytogenetic Technology

## Program Administration

**Program Director** Jun Gu, M.D., Ph.D., CG(ASCP)<sup>CM</sup>  
**Education Coordinator** Ming Zhao, M.D., CG(ASCP), MB(ASCP)  
**Medical Advisor** Guilin Tang, M.D., Ph.D., FACMG

## Program in Cytogenetic Technology

### Mission

The MD Anderson Cancer Center Program in Cytogenetic Technology, in concert with the mission and vision of The University of Texas MD Anderson Cancer Center, is committed to the education of technically and academically competent graduates prepared to meet the immediate and future needs of the Cytogenetic Technology profession.

### Objectives

- The Cytogenetic Technology program is designed to prepare students to become entry-level clinical cytogenetic technologists. The program provides instruction in all the major areas of clinical cytogenetics including:
  - Cancer cytogenetics
  - Molecular techniques
  - Prenatal cytogenetics
  - The role of specific changes in the diagnosis and monitoring of acquired and inherited abnormalities
  - The structure of human chromosomes
- Abnormalities of chromosome number and morphology are linked with over 400 syndromes associated with mental retardation and other phenotypic abnormalities. Identification of these chromosomal abnormalities by cytogenetic technologists provides clinicians in prenatal/postnatal clinics with sufficient information to plan for medical complications that may arise from specific gene defects.
- Cancer cytogenetics is a rapidly growing field where the cytogeneticist plays a key role in the diagnosis, prognosis and treatment of both hematological malignancies and solid tumors. World Health Organization (WHO) guidelines require either cytogenetics or molecular genetics for standard workup of leukemias and lymphomas.
- Cytogenetic technologists are leaders in the development of applications for new DNA technologies that are transforming modern-day medicine.
- Cytogenetic technologists have a wide range of career options in cancer centers, pediatric and genetic counseling clinics, chemical industries, biotechnology companies, research laboratories, molecular cytogenetic laboratories, computer imaging sales and development, pathology labs and research and teaching institutions.

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA, Science and Math GPA
- Personal qualities such as maturity and professional goals based on the personal essay, interview and reference letters.
- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

## Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

## Program Admission Requirements

The full-time Bachelor of Science degree is either a one-year (face-to-face or online) or two-year program (face-to-face) with entry at either the junior or senior level. Part-time enrollment option is also available. Students selecting part-time enrollment will complete their degree beyond the designated length of time, depending on course selections each semester. Application and supporting documents must be submitted to the [Office of the Registrar](#). Qualified students are accepted on a rolling basis.

Applicants to the Program of Cytogenetic Technology must satisfy the following requirements for admission.

**All prerequisite coursework** must be from an accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**A minimum GPA** of 2.5 on a 4.0 scale both overall and in science and mathematics courses is required to be considered for admission. Special circumstances may be considered, but at the discretion of the Admissions Committee.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL section](#) of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 60 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 18 SCH. Within these 60 SCH, the following 24 SCH must be included:

- \*8 SCH in Biological Sciences
- \*16 SCH in Chemistry

*\*Note: 12 of the above 24 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

### For the One-Year Program

Students must complete a minimum of 90 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 48 SCH. Within these 90 SCH, the following 41 SCH must be included:

- \*3 SCH of Genetics
- \*3 SCH of Microbiology
- \*8 SCH in Biological Sciences
- 11 SCH of upper-level courses
- \*16 SCH in Chemistry

*\*Note: 12 of the above 30 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

## Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to School of Health Professions courses with the results being reported to the Registrar.

## Graduation

Each candidate for a baccalaureate degree must complete a minimum of 136 SCH of coursework if admitted into the two-year program or a minimum of 139 SCH of coursework if admitted into the one-year program. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total required SCH

Graduation occurs in August. Upon graduation, students are eligible to take the Clinical Cytogenetics Board of Certification exam given by the ASCP. Please check with the program director for application deadlines and exam dates. Upon passing this exam, the student is considered a certified cytogenetic technologist. The awarding of the degree or certificate is not contingent upon a student passing the national certification exam.

## Curriculum

This intensive program is composed of a didactic phase followed by directed clinical training at affiliated hospitals and laboratories. During the didactic phase, formal lectures are presented on the principles of medical genetics, molecular and biochemical basis of genetic disease, karyotyping, hematology, clinical cytogenetics and molecular genetic technology. Laboratory sessions coordinated with lectures and covering the fundamentals of diagnostic laboratory procedures are included in the didactic phase. Graduates of the program are eligible to take the CG(ASCP) Board of Certification exam

## Current Affiliations

The Program in Cytogenetic Technology has developed clinical affiliations with leading clinical cytogenetic laboratories in Texas and beyond in order that students may develop expertise in a variety of settings and experience the breadth of opportunity available to Cytogenetic Technologists. Clinical experiences in these laboratories offer students the opportunity to achieve competence and confidence in performing a wide variety of cytogenetic procedures on patients' specimens. Visit the [Cytogenetic Technology Program page](#) for a list of current affiliations.

## Accreditation

The Cytogenetic Technology Program is accredited and has conformed its curriculum to the standards published and monitored by [NAACLS](#).

## Course listings

### Junior Year

Refer to the [Junior Year for Laboratory Sciences](#) section of this catalog.

### Senior Year\* (46 SCH)

CC 4120	Introduction to G-band Karyotyping	1
CC 4152	Prenatal Cytogenetics	1
CC 4181	Independent Research Project II	1
CC 4210	Molecular and Biochemical Basis of Genetic Disease	2
CC 4240	Advanced Cytogenetic Laboratory Techniques	2
CC 4250	Clinical Cytogenetics	2
CC 4251L	Clinical Cytogenetics	2
CC 4280	Independent Research Project I	2
CC 4320	Special Topics in Genetics	3
CC 4390	Advanced Topics in Cytogenetics	3
CC 4521	Prenatal Cytogenetics Clinical Rotation	5
CC 4530	Basic Laboratory Techniques	5
CC 4531	Cytogenetics of Hematological Malignant Clinical Rotation	5
GT 4300	Advanced Medical Genetics	3
GT 4330	Genetics of Hematology Malignancies	3
HS 4110	Molecular Genetics Technology	1
HS 4160	Critical Scientific Analysis	1
HS 4161	Seminar in Healthcare	1
HS 4371	Management and Education	3

\*Students entering the School of Health Professions for the first time at the Senior level must take the following additional required courses:

- HS 4100 Health Care Ethics (1)
- HS 4101 Diversity and Cultural Competency (1)
- HS 4170 Special Topics I (1)

# Cytotechnology

A career as a cytotechnologist is both challenging and rewarding. Students are offered training in all major aspects relevant to the practice of cytotechnology as a profession.

## Degree Offered

Bachelor of Science in Cytotechnology

## Program Administration

**Dean ad interim** Peter Hu, Ph.D., MLS(ASCP)<sup>CM</sup> CG<sup>CM</sup> MB<sup>CM</sup>,  
FACSc

## The Program in Cytotechnology

### Mission

The MD Anderson Cancer Center Program in Cytotechnology, in concert with the mission and vision of The University of Texas MD Anderson Cancer Center, is committed to the education of technically and academically competent graduates prepared to meet the immediate and future needs of the Cytotechnology Technology profession.

### Objectives

The Cytotechnology program is designed to prepare students to become entry-level cytotechnologists.

Working with a microscope, cytotechnologists study specimens from all body sites. Using subtle clues present within the cells, they can detect cancer cells, precancerous lesions, benign tumors, infectious agents and inflammatory processes.

The study consists of:

- Lectures
- Demonstrations at the multi-headed microscope in a tutored setting
- Independent student microscope time with faculty feedback
- Rotations through various cytology laboratories providing experience in routine and specialized procedures

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA
- Biology and Chemistry GPA
- Personal qualities such as maturity and professional goals based on the personal essay, aptitude test, interview and reference letters.
- Ability to meet the School of Health Professions non-academic technical standards.
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

### Program Admission Requirements

The Bachelor of Science in Cytotechnology is either a one-year or two-year program with entry at either the junior or senior level. Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Cytotechnology program must satisfy the following requirements for admission.

**All prerequisite coursework** must be from an accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and

laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**Candidates who completed the prerequisite courses** seven or more years before their application may need to update their academic skills in biology, with two courses in Anatomy and/or Physiology, (3 SCH each) with a minimum GPA of 2.5. This requirement may be waived at the discretion of the program director.

**A minimum GPA** of 2.5 on a 4.0 scale both overall and in the science courses is required to be considered for admission.

**Interview** and completion of a questionnaire, Parts I, II and III.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 60 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 18 SCH. Within these 60 SCH, the following 16 SCH must be included:

- \*8 SCH in Biological Sciences, to include 4 SCH in Anatomy and Physiology
- \*8 SCH in Chemistry

*\*Note: 12 of the above 16 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

### For the One-Year Program

Students must complete a minimum of 90 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 48 SCH. Within these 90 SCH, the following 46 SCH must be included:

- \*8 SCH in General Chemistry or higher level chemistry
- 18 SCH of upper-level courses
- \*20 SCH Biological Sciences, to include 4 SCH in Anatomy and Physiology

*\*Note: 12 of the above 28 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of the School of Health Professions course

content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to the School of Health Professions courses with the results being reported to the Registrar.

## Graduation

Each candidate for a baccalaureate degree must complete a minimum of 135 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must be taken at MD Anderson

Graduation occurs in August. Upon graduation, students are eligible to take the national certification exam in cytotechnology given by the ASCP.

Please check with the program director for application deadlines and exam dates. Upon passing the exam, the student is considered a certified cytotechnologist. The awarding of the degree is not contingent upon a student passing the national certification exam.

CT 4303	Gynecologic Cytopathology	3
CT 4305	Nongynecologic Cytopathology	3
CT 4306	Nongynecologic Diagnostic Laboratory	3
CT 4308	Gynecologic Diagnostic Laboratory II	3
CT 4310	Fine-Needle Aspiration Diagnostic Laboratory	3
CT 4312	Gynecologic Diagnostic Laboratory III	3
CT 4404	Gynecologic Diagnostic Laboratory	4
CT 4715	Clinical Rotation	7

\*Students entering the School of Health Professions for the first time at the Senior level must take the following additional required courses:

- HS 4100 Health Care Ethics (1)
- HS 4101 Diversity and Cultural Competence (1)

## Curriculum

This intensive program is composed of a didactic and laboratory phase followed by directed clinical training at affiliated hospitals and cytology laboratories. The primary goal of the Cytotechnology program is to provide the community with cytotechnologists who are prepared to work at the staff level in hospital and private laboratories and university medical centers. With experience, cytotechnologists can perform at the supervisory, educational and administrative levels. The job responsibilities of cytotechnologists are expanding and research opportunities are increasing with the advancement of new tumor identification techniques and Human Papilloma Virus testing.

## Affiliations

The Program in Cytotechnology has developed affiliations with reference labs and sister medical institutions within the Texas Medical Center and beyond, so that students will develop expertise in a variety of settings and experience the breadth of opportunity available to a certified cytotechnologist. Visit the [Cytotechnology Program page](#) for a list of current affiliations.

## Accreditation

The program is accredited by and has conformed its curriculum to the standards and guidelines published and monitored by the [CAAHEP](#).

## Course listings

### Junior Year

Refer to the [Junior Year for Laboratory Sciences](#) section of this catalog.

### Senior Year\* (45 SCH)

CT 4101	Introduction to Cytotechnology	1
CT 4102	Theory and Practice of Cytopreparatory Techniques	1
CT 4107	Non-Gynecologic Cytopathology II	1
CT 4111	Theory and Practice of Cytopreparatory Techniques	1
CT 4114	Research Project	1
CT 4118	Immunocytochemistry Image Analysis	1
CT 4119	Cytogenetics and Fluorescent In Situ Hybridization	1
CT 4120	Laboratory Management	1
CT 4209	Fine-Needle Aspiration Cytopathology	2
CT 4213	Nongynecologic Diagnostic Laboratory II	2
CT 4216	Cytopathology Theory	2
CT 4217	Cytopathology Diagnostic Laboratory	2

# Diagnostic Imaging

Diagnostic Imaging is a specialty devoted to the study of routine and advanced radiographic imaging procedures. The curriculum includes emerging advanced technologies in Computed Tomography (CT), CT with Vascular Interventional VI and Magnetic Resonance Imaging (MRI). The program prepares student for various careers in hospitals, clinics, education and management.

## Certificate Offered

Certificate in Radiologic Sciences

*Note: Certificates may be awarded at the completion of the second year of the Diagnostic Imaging Program, allowing the student to sit for the American Registry of Radiologic Technologists (ARRT) certification examination.*

## Degree Offered

Bachelor of Science in Diagnostic Imaging, with Emphases in

- Computed Tomography
- Computed Tomography with Vascular Interventional
- Education
- Magnetic Resonance Imaging (MRI)
- Management

## Program Administration

**Program Director** William Undie, Ed.D., R.T.(R)(T)

**Education Coordinator of CT and VI** Deborah Scroggins, M.S., R.T.(R)(CT)(CV)(M)

**Education Coordinator of MRI** Sonja Boiteaux, M.S., R.T.(R)(MR),MRSO

**Education Coordinator of Radiography, Education and Management** Suzieann Richards-Bass, M.A.Ed., M.B.A., R.T.(R)

**Medical Advisor** Aurelio Matamoros, M.D.

## Program in Diagnostic Imaging

### Mission

The mission of the Diagnostic Imaging Program is to provide the highest quality of education to diagnostic imaging students through formal didactic and state-of-the-art clinical experiences that prepare our students to be diagnostic imaging professionals who are patient care focused, critical thinkers and engaged in lifelong learning.

### Vision

We shall be the premier educational program in Diagnostic Imaging by providing innovative curricular, clinical and continuing education services to the diagnostic imaging community and the patients we serve.

### Goals

Fulfillment of the program's mission is assessed by the program's effectiveness and the degree to which the program achieves the goals in which our students will academically and professionally:

- Students will develop a patient care focus by providing superior patient care.
- Students will demonstrate critical thinking skills.
- Students will adopt a philosophy of life-long learning through continuing education and professional involvement.
- Students will embrace the MD Anderson core values of caring, integrity and discovery.
- Students will communicate effectively in a variety of settings.

### Objectives

- The radiologic technologist is a prominent member of the health care team focused on the diagnosis and treatment of human disease.
- Radiologic technologists work with ionizing radiation, radiopharmaceuticals, sound waves and magnetic fields to produce medical images in diagnostic imaging or radiology departments of hospitals and medical clinics or free-standing imaging centers.

- The Diagnostic Imaging Program is designed to prepare students for a challenging career in the Radiologic Sciences through formal didactic and state-of-the-art clinical education. Today's medical practice dictates that technologists have advanced skills in imaging, patient assessment and treatment of specific disease.
- The program accommodates Bachelor of Science degree-seeking students as follows:
  - Those who are working towards initial certification in Radiologic Technology (radiography). These students enter the Diagnostic Imaging Program as sophomores.
  - Graduates of an accredited program in radiologic sciences, with acceptable transferable credits, who must submit proof of certification and have completed the required Texas core curriculum. These students enter the Diagnostic Imaging Program during the senior year of their education and complete their degree through the School of Health Professions.

## MRI Program Emphasis

### Mission

The mission of the Diagnostic Imaging Program MRI Emphasis is to provide the highest quality of education to MRI students through formal didactic and state-of-the-art clinical experiences that prepare our students to be MRI professionals who are patient care focused, critical thinkers and engaged in lifelong learning.

### Vision

We shall be the premier educational program in MRI by providing innovative curricular, clinical and continuing education services to the diagnostic imaging community and the patients we serve.

### Goals

Fulfillment of the program's mission is assessed by the program's effectiveness and the degree to which the program achieves the goals and learning outcomes that will enable our students to succeed academically and professionally:

- Students will develop patient care focus by providing superior patient care.
- Students will demonstrate critical thinking skills in the clinical environment.
- Students will adopt a philosophy of life-long learning through continuing education and professional involvement.
- Students will embrace the MD Anderson core values of caring, integrity and discovery.
- Students will communicate effectively in a variety of settings.

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA and prerequisite GPA
- Personal qualities such as maturity and professional goals as expressed in the interview and described in reference letters
- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.

Additional Admission factors for applicants to the Certificate Program include a:

- Clinical site visit evaluation
- 8 hours clinical site observation at MD Anderson

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

### Program Admission Requirements

**The Certificate in Radiologic Sciences** is a two-year program, with entry at the Sophomore year.

**The Bachelor of Science in Diagnostic Imaging** is either a three-year program (entry at Sophomore level) or a one-year program (entry at Senior level). Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Certificate in Radiologic Sciences and applicants to the Bachelor of Science in Diagnostic Imaging Program must satisfy the following requirements for admission.

**All prerequisite coursework** must be from a regionally accredited college or university.

**The applicant must have satisfactorily completed** all required prerequisite courses for their program. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**Clinical site visit** (Certificate Applicants only) 8 hours clinical site observation at MD Anderson.

**CPR** American Heart Association certification

**Minimum overall GPA** of 2.5 on a 4.0 scale.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

#### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

#### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

#### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

#### For the Certificate in Radiologic Sciences Program

Students must complete a minimum of 30 SCH of the Texas Core Curriculum. Within these 30 SCH, Anatomy and Physiology I (4 SCH) must be included.

*Note: Full completion of the 42 SCH of the Texas Core Curriculum is recommended.*

#### For the Three-Year Bachelor's Program

Students must complete a minimum of 42 SCH that includes the Texas Core Curriculum (42 SCH) and Anatomy and Physiology I (4 SCH).

*Note: Full completion of the 42 SCH of the Texas Core Curriculum is recommended, but applicants with a minimum of 30 SCH of the Texas Core Curriculum will be considered for admissions.*

*Note: Completion of an associate's or bachelor's degree is required to sit for the ARRT exam.*

#### For the One-Year Bachelor's Program

Students must be certified by:

- The [American Registry of Diagnostic Medical Sonography](#) (ARDMS), ARRT or the [Nuclear Medicine Technology Certification Board](#) (NMTCB) if applying to the Education, Management or MRI emphases
- The ARRT (with R or RT) or the NMTCB if applying to the CT or CT with VI emphases

All students must complete a minimum of 58 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 16 SCH. Within these 58 SCH, Anatomy and Physiology I (4 SCH) must be included.

*Note: Students with a minimum of 30 SCH may apply for the Education or Management part-time option.*

## Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of the School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to the School of Health Professions courses with the results being reported to the Registrar.

## Graduation

Each candidate for a baccalaureate degree must complete a minimum of 130 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must be taken at MD Anderson

Upon completion of formal didactic and clinical education, students will have demonstrated the professional skills necessary to work with ionizing radiation, radiopharmaceuticals, sound waves and magnetic fields to produce medical images in diagnostic imaging or radiology departments of hospitals and medical clinics or freestanding imaging centers.

Graduation occurs in August. Upon graduation, students are eligible to take the national certification exam administered by the ARRT.

Please check with the program director for application deadlines and exam dates. Upon passing the exam, the student is considered a certified Radiological Technologist. The awarding of the degree is not contingent upon a student passing the national certification exam.

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## Curriculum

The curriculum meets or exceeds the curriculum recommendations of the American Society of Radiologic Technologists (ASRT). This intensive three-year program is composed of a didactic phase followed by directed clinical training at affiliated hospitals and laboratories.

### Current Affiliations

During the clinical phase of instruction, training and supervision are provided in a variety of clinical sites. Visit the [Diagnostic Imaging Program page](#) for a list of current affiliations.

### Accreditation

The Diagnostic Imaging Program is accredited by and has conformed its curriculum to the standards and guidelines published and monitored by the [JRCERT](#).

### Course Listings for the Three-Year Program

All students admitted to the Three-Year Program take the same core classes the first two years (sophomore and junior years) of the program and choose their emphasis for the third year (senior year).

#### Sophomore and Junior Years (62 SCH)

DI 1200	Introduction to Radiologic Sciences	2
DI 2161	Clinical Education I	1
DI 2221	Patient Care in Radiologic Sciences	2
DI 2262	Clinical Education II	2
DI 2263	Clinical Education III	2

DI 2301	Principles of Radiographic Exposure I	3
DI 2331	Radiographic Anatomy and Positioning I	3
DI 2332	Radiographic Anatomy and Positioning II	3
DI 2333	Radiographic Anatomy and Positioning III	3
DI 2334	Radiographic Anatomy and Positioning IV	3
DI 2335	Radiographic Anatomy and Positioning	3
DI 2342	Principles of Radiographic Exposure II	3
DI 3200	Capstone: Registry Review	2
DI 3343	Quality Management in Radiology	3
DI 3250	Imaging Pathology	2
DI 3261	Clinical Education IV	2
DI 3262	Clinical Education V	2
DI 3263	Clinical Education VI	2
DI 3352	Professional Literature Review	3
DI 4101	Radiation Safety and Protection	1
DI 4300	Research Techniques in Radiologic Sciences	3
DI 4301	Research Project	3
HS 3370	Fundamentals of Writing and Critical Thinking	3
HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4111	Medical Law	1
RT 4310	Radiation Therapy Physics	3

#### Computed Tomography Senior Year (30 SCH)

DI 4351	CT Physics and Instrumentation	3
DI 4352	CT of the Nervous System	3
DI 4353	CT and Interventional Physics II	3
DI 4354	CT and IR of the Chest, Abdomen, Pelvis	3
DI 4355	Special Topics in CT & VI	3
DI 4356	CT of the Extremities	3
DI 4357	CT Comprehensive Review	3
DI 4393	Internship I - CT	3
DI 4394	Internship II - CT	3
DI 4395	Internship III - CT	3

#### Computed Tomography with Vascular Interventional Senior Year (36 SCH)

DI 4351	CT Physics and Instrumentation	3
DI 4352	CT of the Nervous System	3
DI 4353	CT and Interventional Physics II	3
DI 4354	CT and IR of the Chest, Abdomen, Pelvis	3
DI 4355	Special Topics in CT & VI	3
DI 4356	CT of the Extremities	3
DI 4357	CT Comprehensive Review	3
DI 4358	Vascular/Nonvascular Interventional Procedures	3
DI 4359	VI Comprehensive Review CT/VI	3
DI 4393	Internship I - CT	3
DI 4394	Internship II - CT	3

DI 4395	Internship III - CT	3
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#### Education Senior Year (30 SCH)

DI 4310	Teaching Strategies in Health Care Education	3
DI 4311	Instructional Design	3
DI 4313	Internship I - Education	3
DI 4314	Internship II	3
DI 4315	Issues in Health Care Education	3
DI 4316	Leadership in Radiologic Sciences	3
DI 4319	Fiscal Analysis in Health Care	3
DI 4322	Effective Human Resources Management	3
DI 4323	Management Skills for the New Supervisor	3
DI 4326	Individual Projects	3

#### Magnetic Resonance Imaging Senior Year (30 SCH)

DI 4361	MRI Safety, Physics and Instrumentation	3
DI 4362	MRI of the Nervous System	3
DI 4363	Physics II: Advanced MRI Procedures	3
DI 4364	MRI of the Extremities	3
DI 4365	Special Topics and Future Directions in MRI	3
DI 4366	MRI of the Chest, Abdomen and Pelvis	3
DI 4367	MRI Comprehensive Review	3
DI 4390	Internship I - MRI	3
DI 4391	Internship II - MRI	3
DI 4392	Internship III - MRI	3

#### Management Senior Year (30 SCH)

DI 4316	Leadership in Radiologic Sciences	3
DI 4317	Staff Development	3
DI 4318	Promotional Strategies in Radiologic Sciences	3
DI 4319	Fiscal Analysis in Health Care	3
DI 4320	Current Trends in Healthcare Management	3
DI 4321	Operations Management	3
DI 4322	Effective Human Resources Management	3
DI 4323	Management Skills for the New Supervisor	3
DI 4324	Management Internship I	3
DI 4328	Management Internship II	3

#### Course Listings for the One-Year Program

All students admitted to the One-Year Program take their respective emphasis senior classes in addition to the following courses.

#### All Emphases Senior Year (42-48 Total SCH)

DI 4300	Research Techniques in Radiologic Sciences	3
DI 4301	Research Project	3
HS 3370	Fundamentals of Writing and Critical Thinking	3
HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4111	Medical Law	1

# Diagnostic Medical Sonography

Diagnostic Medical Sonography is a non-invasive imaging modality that uses high frequency sound waves to produce a dynamic visual image of the internal organs or tissues in the body including abdominal organs, a developing fetus, male or female reproductive organs and blood flow.

## Degree Offered

Bachelor of Science in Diagnostic Medical Sonography

## Program Administration

**Program Director** William Undie, Ed.D., R.T.(R)(T)  
**Education Coordinator** Hady Abdin, M.D.R., RDMS, RVT, RDCS, RPVI  
**Medical Advisor** Aurelio Matamoros, M.D.

## The Program in Diagnostic Medical Sonography

### Mission

The mission of the Diagnostic Medical Sonography Program is to provide the highest quality of education to diagnostic imaging students through formal didactic and state-of-the-art clinical experiences that prepare students to be diagnostic medical sonographers who are focused on patient care, are critical thinkers and are engaged in lifelong learning.

### Vision

We shall be the premier educational program in Diagnostic Medical Sonography by providing innovative curricular, clinical and continuing education services to the diagnostic imaging community and the patients we serve.

### Goals

Fulfillment of the program's mission is assessed by the program's effectiveness and the degree to which the program achieves the goals in which our students will academically and professionally:

- Graduates will develop a patient care focus by providing superior patient care.
- Graduates will adopt a philosophy of lifelong learning through continuing education and professional involvement.
- Graduates will embrace MD Anderson values of caring, integrity and discovery.
- Graduates will be able to communicate effectively in a variety of settings.
- Prepare graduates to successfully challenge the ARDMS boards through didactic education and clinical experience.
- Prepare students to be successful in meeting the challenges of being a Sonographer.
- Provide a high quality education experience for all students.
- Provide tutoring and online tutoring to all students to help ensure their success in the program.
- Provide students with awareness for the significance of continuing education and instill in them the desire to continue their education after graduation.
- Graduate Sonographers to practice Sonography within an ethical and legal framework consistent with the ARDMS and the [Society of Diagnostic Medical Sonography](#) (SDMS) standards.
- Graduate Sonographers to use critical thinking to analyze clinical data and current literature as a basis for decision making in Sonography.
- To prepare competent entry level Sonographers in the cognitive (knowledge), psychomotor (skills) and affective (behavior) learning domains.

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA and prerequisite GPA
- Personal qualities such as maturity and professional goals as expressed in the interview

- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.
- Experience in direct patient care contact or in shadowing a professional in the field

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply](#) page for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

### Program Admission Requirements

The full-time Bachelor of Science degree is a two-year (face-to-face) program with entry at the junior level. Application and supporting documents must be submitted to the Office of the Registrar.

Applicants to the Program of Diagnostic Medical Sonography must satisfy the following requirements for admission.

**All prerequisite coursework** must be from an accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**A minimum GPA** of 2.5 on a 4.0 scale both overall and in science and mathematics courses is required to be considered for admission. Special circumstances may be considered, but at the discretion of the Admissions Committee.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL section](#) of this catalog.

**Attend one information session** the year you are applying for a seat in the program.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 42 SCH that includes the Texas Core Curriculum (42 SCH). Within these 42 SCH, the following 12 SCH must be included:

- 4 SCH College Physics with laboratory.
- 8 SCH in Anatomy and Physiology I and II with laboratories.

*Note: Students are recommended to complete an associate's or bachelor's degree from a regionally accredited institution, but a degree is not required.*

### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations

- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of the School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to the School of Health Professions courses with the results being reported to the Registrar.

## Graduation

Each candidate for a baccalaureate degree must complete a minimum of 120 SCH of coursework. Within this requirement, students must complete at least 40 SCH of upper-level coursework at MD Anderson.

Graduation occurs in August. Upon graduation, participants will be eligible to take the national registry examination administered by the ARDMS under category 3A. The awarding of the degree is not contingent upon a student passing the national certification exam

## Clinical Rotations

Students rotate through multiple clinical sites at The Texas Medical Center. The diversity of examination procedures at the respective facilities offers the students broad skills, as well as opportunities for future employment upon graduation. Visit the [Diagnostic Medical Sonography Program page](#) for a list of current rotations.

DS 4246	Sonography of Small Parts	2
DS 4265	Pediatric Sonography	2
DS 4302	Principles of Vascular Technology	3
DS 4303	Advanced Non-Invasive Vascular Technology	3
DS 4311	Clinical Internship III	3
DS 4312	Clinical Internship IV	3
DS 4345	Sonography of High Risk Obstetrics	3
DS 4351	Doppler Sonography	3
DS 4374	Sonography Laboratory IV	3
DS 4375	Sonography Laboratory V	3
HS 3370	Fundamentals of Writing and Critical thinking	3
HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4111	Medical Law	1

Upon completion of formal didactic and clinical education, students will have demonstrated the professional skills necessary to work with ionizing radiation, radiopharmaceuticals, sound waves and magnetic fields to produce medical images in diagnostic imaging or radiology departments of hospitals and medical clinics or free-standing imaging centers.

## Curriculum

### Accreditation Information

MD Anderson is regionally accredited through [SACS](#).

The educational standards of this program are based on the [Diagnostic Medical Sonography National Educational Curriculum](#).

### Course Listings

#### Junior and Senior Years (78 SCH)

DI 4300	Research Techniques in Radiologic Sciences	3
DI 4301	Research Project	3
DS 3101	General Ultrasound	1
DS 3103	Introduction to Vascular Sonography	1
DS 3211	Clinical Internship I	2
DS 3221	Sonography Physics I	2
DS 3222	Sonographic Physics II	2
DS 3262	Gynecologic Pathology	2
DS 3264	Sonography of Superficial Structures	2
DS 3312	Clinical Internship II	3
DS 3341	AB Ultrasound	3
DS 3343	Obstetrics Sonography	3
DS 3361	Abdominal and Pelvic Pathology	3
DS 3363	Neurosonology	3
DS 3371	Sonography Laboratory	3
DS 3372	Sonography Laboratory II	3
DS 3373	Sonography Laboratory III	3
DS 4100	Registry Review	1
DS 4142	Special Topics in Diagnostic Medical Sonography	1

# Health Care Disparities, Diversity and Advocacy

The purpose of the program is to provide the student with specific knowledge and skills related to global health care disparities, diversity and cultural competence in the health care setting and advocating patient centered care. This degree presents the student with unique opportunities to blend the practices of health care disparities, diversity and patient advocacy.

The program will provide a degree to Health Care Disparities, Diversity and Advocacy majors and can be a degree completion program for students who have academic and/or professional experience in a health care related field. The degree is offered in a non-traditional format utilizing hybrid/blended learning. Students may enroll full-time or part-time to accommodate employment obligations.

Graduates can use this education to develop professional growth in their clinical expertise or seek employment in health care disparities, diversity or patient advocacy.

This new program will offer courses beginning the Fall 2016 semester.

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## Degree Offered

Bachelor of Science in Health Care Disparities, Diversity and Advocacy

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## Program Administration

**Program Director** Shaun T. Caldwell, M.S., R.T.(R)(T)  
**Program Advisors** Chris Hernandez M.B.A., Patient Advocacy;  
Lovell Jones Ph.D., Health Disparities

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## Program in Health Care Disparities, Diversity and Advocacy

### Mission

The mission of the Health Care Disparities, Diversity and Advocacy program is to provide the highest quality of education to students through formal didactic and practical experiences in the practice of health care disparities, diversity and patient advocacy.

### Vision

We shall be the premier provider of education in health care disparities, diversity and patient advocacy based on best practices and research in these professions.

### Objectives

- Our students will concentrate on health disparities. The student will:
  - Demonstrate awareness of factors contributing to disparities in health care among certain populations
  - Identify resources available for reducing health disparities
  - Demonstrate health professionals role in eliminating health disparities
- Our students will be culturally competent. The student will:
  - Demonstrate cultural sensitivity
  - Analyze barriers to the delivery of health care in selected populations
  - Apply solutions to selected concerns in populations studied
- Our students will be patient advocates. The student will:
  - Demonstrate communication techniques in difficult environments
  - Evaluate risks in health care institution- patient relationship
  - Identify federal, state and local regulations related to patient advocacy

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA and prerequisite GPA
- Personal qualities such as maturity and professional goals as expressed in the interview and described in reference letters
- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

### Program Admission Requirements

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**Students entering the program** must have earned a minimum of 42 SCH of Texas General Education Core Curriculum (see table below).

**Candidates who completed the prerequisite** courses seven or more years before admission may need to update their academic skills. For specific information, contact the program director.

**Minimum overall GPA** of 2.5 on a 4.0 scale.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Hybrid Program

Students must complete a minimum of 72 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 30 SCH. To fulfill these 30 SCH, students have the following options:

1. Applicants may choose to transfer 30 SCH of elective courses from regionally accredited colleges and universities. Remedial-level courses will not be accepted.
2. Applicants holding a national certification in a health care discipline, e.g. Medical Laboratory Technician, Surgical Technologist, Dental Hygienist, may choose to be awarded a maximum of 30 SCH at the discretion of the School of Health Professions Curriculum Committee. Remedial-level courses will not be accepted.
3. Applicants may choose to complete 30 SCH of elective courses at the School of Health Professions. Course offerings vary by semester.

In addition, applicants must have completed a minimum of 34 SCH of acceptable transferrable credit of elective courses or complete an additional 34 SCH of elective curriculum at the School of Health Professions.

Applicants who hold nationally recognized certification in a health profession and are graduates of an accredited program may be awarded a maximum of 36 SCH as elective coursework. SCH given will be evaluated and determined using set criteria developed by the program's admissions committee.

An applicant who has earned a baccalaureate degree from a regionally accredited college or university may be awarded a second such degree by meeting the following requirements:

- Accepted to the School of Health Professions
- Fulfilled all General Education Core curriculum requirements
- Completed a minimum of 44 SCH of the required curriculum
- Provided supporting documents to the Office of the Registrar

### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of the School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to the School of Health Professions courses with the results being reported to the Registrar.

### Graduation

Each candidate for a baccalaureate degree must complete a minimum of 120 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must be taken at MD Anderson

Upon completion of formal didactic curriculum, students will have demonstrated the professional skills necessary to function as an effective agent in health care disparities, diversity and patient advocacy.

Graduation occurs in August. Prior to graduation, students must successfully complete a final competency examination with a score of 75% or greater.

## Curriculum

### Accreditation

MD Anderson is regionally accredited through [SACS](#).

### Course Listings

#### Required (48 SCH)

DDA 4311	Disparities in Health Care	3
DDA 4312	Global Health Practice	3
DDA 4313	Caring for the Aging Population	3
DDA 4314	Resources and Support for Accommodating Patients with Special Needs	3
DDA 4321	Accommodating Differences in the Healthcare Setting	3
DDA 4322	Mentoring Across Differences	3
DDA 4323	Organizational Behavior and Leadership in Healthcare	3
DDA 4324	Clinical Preceptorship in Diversity	3
DDA 4331	Patient Advocacy	3
DDA 4332	The Role of the Patient Advocate	3
DDA 4333	Health Care Policy and Practice	3
DDA 4334	Clinical Preceptorship in Patient Advocacy	3
DDA 4341	Professional Development	3

DDA 4345	Capstone	3
HS 3340	Research Methods	3
HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4111	Medical Law	1

#### Electives (30 SCH)

Students who choose to complete elective courses at MD Anderson may choose from the course offering below.

DI 3345	Directed Readings	1-3
DI 3346	Professional Development Independent Study (repeatable)	1-3
DI 4310	Teaching Strategies in Health Care Education	3
DI 4311	Instructional Design	3
DI 4312	Patient Education	3
DI 4322	Effective Human Resources Management	3
DI 4323	Management Skills for New Supervisor	3
HS 3320	Medical Genetics	3
HS 3333	Statistics	3
HS 3347	Current Issues in Health Care	3
HS 4371	Management and Education	3

# Histotechnology

Histotechnology is the specialty that plays a fundamental role in detecting abnormalities of tissue cells. The application of theoretical and applied knowledge of biologic and chemical sciences is utilized to prepare tissue specimens for microscopic examination. This is an important part of the intricate process of scientific investigation used in establishing and confirming patient diagnosis and research.

## Degree Offered

Bachelor of Science in Histotechnology

## Program Administration

**Program Director** Mark A. Bailey, M.A., HTL(ASCP)<sup>CM</sup>  
**Education Coordinator** Toysha Mayer, D.H.Sc., HT(ASCP)  
**Medical Advisor** Stanley R. Hamilton, M.D., FACP, AGAF

## The Program in Histotechnology

### Mission

The mission of the School of Health Professions Program in Histotechnology, in concert with the mission and vision of the University of Texas MD Anderson Cancer center, is to develop and maintain a quality program in which our graduates are academically and technically competent to enter the workforce as entry-level histotechnologists. Therefore, our students and graduates will promote best practices and ethical standards associated with the Histotechnology discipline.

### Objectives

The primary objective of the Histotechnology program is to provide entry-level histotechnologists who are prepared to perform a wide variety of routine as well as more advanced laboratory techniques such as:

- Digital Microscope Imaging
- Immunohistochemistry
- Laboratory Management
- Tissue Biopsy Grossing
- Tissue Biorepository

Our graduates are prepared to work in a variety of settings such as hospitals, medical schools, veterinary medicine, research, private independent laboratories, industry and local, state and federal agencies in both urban and rural settings.

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA, Science and Math GPA
- Exhibits and demonstrates professionalism
- Professional goals based on the personal essay, reference letters, employment history and overall application score
- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender and disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

### Program Admission Requirements

The Bachelor of Science degree is either a one-year or two-year program with entry at either the junior or senior level. Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Program of Histotechnology must satisfy the following requirements for admission.

**All prerequisite coursework** must be from a regionally accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**Applicants to the Histotechnology Program** must have completed all core curriculum courses required by the TEC and all biology and chemistry courses required by the [Board of Certification](#) of ASCP.

**A minimum GPA** of 2.5 on a 4.0 scale both overall and in science and mathematics courses is required to be considered for admission. Special circumstances may be considered, but at the discretion of the Admissions Committee.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 60 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 18 SCH. Within these 60 SCH, the following must be included:

- 12 SCH in Biology I, Biology II, and General Chemistry
- \*8 additional SCH in Biology and/or Chemistry

*\*Note: 12 of the above 20 SCH may be satisfied by the Life and Physical Science Texas Core course selection.*

### For the One-Year Program

Students must complete a minimum of 90 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 48 SCH. Within these 90 SCH, the following must be included:

- 18 SCH of upper-level courses
- 12 SCH in Biology I, Biology II, and General Chemistry
- \*27 SCH in Biology and/or Chemistry

*\*Note: 12 of the above 27 SCH may be satisfied by the Life and Physical Science Texas Core course selection.*

### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for

establishing knowledge of the School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to the School of Health Professions courses with the results being reported to the Registrar

\*Students entering the School of Health Professions for the first time at the Senior level must take the following additional required courses:

- HS 4100 Health Care Ethics (1)
- HS 4101 Diversity and Cultural Competence (1)

## Graduation

Each candidate for a baccalaureate degree must complete a minimum of 126 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must be taken at MD Anderson

Graduation occurs in August. Upon graduation, students are eligible to take the national certification exam in histotechnology given by the ASCP [Board of Certification](#). Please check with the program director for application deadlines and exam dates. Upon passing either exam, the student is considered a certified histotechnologist. The awarding of the degree is not contingent upon a student passing the national certification exam.

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## Curriculum

This intensive two-year program is composed of a didactic phase followed by directed clinical internships at affiliated hospitals and laboratories. During the didactic phase, formal lectures, demonstrations and rotations through clinical laboratories provide experience in routine and specialized procedures. Laboratory sessions are coordinated with lectures and cover the fundamentals of diagnostic laboratory procedures and are included in the didactic phase. The program maintains an extensive collection of reference books, microscopic slides and projection slides, Power Point presentations and microscopic digitized images for use in lectures and independent study. Students are expected to maintain high academic performance and display appropriate professional and ethical behavior during all phases of their education and training.

## Current Affiliations

The Program in Histotechnology has developed affiliations with reference labs and medical institutions in Houston, so that students will develop expertise in a variety of settings and experience the breadth of opportunity available to a certified histotechnologist. During the clinical phase of instruction, training and supervision are provided in affiliated clinical laboratories. Visit the [Histotechnology Program page](#) for a list of current affiliations.

## Accreditation

The Histotechnology program is accredited by, and the curriculum conforms to the standards published and monitored by [NAACLS](#).

## Course listings

### Junior Year

Refer to the [Junior Year for Laboratory Sciences](#) section of this catalog.

### Senior Year\* (38 SCH)

HS 3254	Immunohistochemistry	2
HS 4371	Management and Education	3
HT 4241	Histotechnology Laboratory Operations I	2
HT 4242	Histotechnology Laboratory Operations II	2
HT 4312	Theory & Practice of Histotechniques I	3
HT 4399	Special Topics in Histotechnology	3
HT 4413	Theory & Practice of Histotechniques II	4
HT 4444	Theory of Special Stains	4
HT 4521	Histotechniques Laboratory Rotation I	5
HT 4522	Histotechniques Laboratory Rotation II	5
HT 4523	Histotechniques Clinical Laboratory III	5

## Medical Dosimetry

Medical Dosimetrists are vital members of the radiation oncology team, working closely with radiation oncologists, medical physicists, and radiation therapists to create customized radiation treatment plans designed to target cancer while sparing normal tissue. In order to carry out this work, medical dosimetrists must develop a knowledge base that includes, but is not limited to, human anatomy, clinical disease processes, radiation physics, and computer technology.

Medical dosimetrists use multimodality imaging, including CT, MRI, and PET scans, to construct three-dimensional treatment plans that will allow the delivery of high doses of radiation to a tumor while minimizing the risk to sensitive surrounding tissues. In the course of their work, medical dosimetrists also contribute to excellence in patient care by participating in quality assurance and innovative clinical research.

Students are prepared for the technical, theoretical, and psychological aspects of a career in this field and acquire the professional skills of dose calculation, treatment design and quality assurance through intensive classroom, laboratory, and clinical education.

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### Degree Offered

Bachelor of Science in Medical Dosimetry

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### Program Administration

**Program Director** Mahsa Dehghanpour, Ed.D., CMD

**Education Coordinator** Jamie Baker, Ph.D., CMD

**Medical Advisor** George Perkins, M.D.

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### The Program in Medical Dosimetry

#### Mission

To provide the high quality of didactic and technologically advanced clinical education in Medical Dosimetry and to graduate professional practitioners who are valued by radiation oncology employers, display excellent treatment planning and assessment skills, and remain active in the professional community and learning throughout their careers.

#### Vision

We shall be the premier educational program in medical dosimetry by providing innovative curricular, clinical and continuing education services to The University of Texas MD Anderson Cancer Center, the State of Texas and the world.

#### Goals

- Students will be clinically competent.
- Students will display critical thinking skills.
- Students will practice ethically and determine the importance of professional growth.
- Students will display effective communication skills.
- The program will provide the community with entry-level medical dosimetrists.

#### Objectives

The Program in Medical Dosimetry is designed to prepare students for the technical, theoretical and psychological aspects of a career in this field. Students acquire the professional skills of dose calculation, treatment design and quality assurance through intensive classroom, laboratory and clinical education under the supervision of educated, experienced medical dosimetrists, physicists and radiation oncologists.

#### Selection Process

Admission is dependent on factors that include

- Overall undergraduate GPA
- Prerequisite coursework
- Personal qualities such as maturity and professional goals, as well as academic capability as demonstrated in the interview and described in reference letters
- Ability to meet the School of Health Professions non-academic technical standards

- Race, religion, national origin, veteran status, gender and disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

#### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

#### Program Admission Requirements

The Bachelor of Science in Medical Dosimetry is two-year program with entry at the junior level. Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Program in Medical Dosimetry must satisfy the following requirements for admission to the Bachelor of Science degree program.

**All prerequisite coursework** must be from a regionally accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduation. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**Candidates who completed the prerequisite** courses seven or more years before the application may be required to update their academic skills. For specific information, contact the program director.

**A minimum overall undergraduate GPA** of 2.5 on a 4.0 scale is required.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL section](#) of this catalog.

#### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

#### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

#### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

#### For the Two-Year Program

Students must complete a minimum of 60 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 18 SCH. Within these 60 SCH, the following 22 SCH must be included:

- 6 SCH Calculus I and II
- \*8 SCH in Anatomy and Physiology
- \*8 SCH in General Physics I and II with laboratories

*\*Note: 12 of the above 16 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

#### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to School of Health Professions courses with the results being reported to the Registrar.

## Graduation

Each candidate for a baccalaureate degree must complete a minimum of 130 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must be taken at MD Anderson

Graduation occurs in August. Upon graduation, students are eligible to take the national certification exam in Medical Dosimetry given by the: Medical Dosimetrist Certification Board (MDCB). Please check with the program director or visit the [MDCB site](#) for application deadlines and exam dates. Upon passing the exam, the student is considered a Certified Medical Dosimetrist (CMD). The awarding of the degree is not contingent upon a student passing the national certification exam.

## Curriculum

This intensive two-year program is composed of didactic education and directed clinical training at MD Anderson clinics and affiliated hospitals. During the didactic phase, formal lectures cover dose calculations, treatment design, quality assurance and other field specific topics. Treatment planning laboratory sessions complement the lecture series.

## Current Affiliations

During the clinical phase of instruction, training and supervision are provided in a variety of locations. Visit the [Medical Dosimetry Program page](#) for a list of current affiliations.

## Accreditation

The Program is accredited by and has conformed its curriculum to the standards and guidelines published and monitored by the [JRCERT](#).

## Course Listings

The table below represents the Required Professional Courses students must take during the two-year program.

### Junior/Senior Years (70 SCH)

HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4300	Pathophysiology for Health Professions	3
MD 3201	Introduction to Radiation Treatment	2
MD 3302	Introduction to Treatment Planning I	3
MD 3303	Introduction to Treatment Planning II	3
MD 3304	Introduction to Clinical Medical Dosimetry	3
MD 4102	Anatomy for Radiation Oncology	1
MD 4104	Aspects of Radiation Oncology	1
MD 4210	Radiation Biology	2
MD 4300	Introduction to Medical Dosimetry	3
MD 4301	Medical Dosimetry Physics	3
MD 4302	Brachytherapy Dosimetry	3
MD 4303	Research in Radiologic Sciences I	3

MD 4305	Medical Dosimetry Physics II	3
MD 4306	Research in Radiologic Sciences II	3
MD 4309	Interstitial and Intracavitary Dosimetry	3
MD 4313	Clinical Radiation Oncology	3
MD 4401	Radiation Physics	4
MD 4504	Clinical Education I	5
MD 4617	Clinical Education II	6
MD 4508	External Beam Dosimetry	5
MD 4510	Clinical Education III	5
RT 4101	Radiation Safety and Protection	1

If a student has taken a required course as a prerequisite prior to entering the program, then that student will not be required to repeat the course, but must substitute the course with a Free Elective course with equivalent SCH in order to fulfill the minimum required SCH for graduation from the Medical Dosimetry program.

### Free Elective Courses

For students who have already taken the above required courses prior to entering the program, but who need to fulfill the minimum SCH required for graduation from the Medical Dosimetry program.

DI 4310	Teaching Strategies in Health Care Education	3
DI 4318	Promotional Strategies in Radiologic Sciences	3
DI 4320	Current Trends in Health Care Management	3
DI 4322	Effective Human Resources Management	3
DI 4323	Management Skills for the New Supervisor	3
HS 3110	Medical Terminology	1
HS 3340	Research Methods	3
HS 4111	Medical Law	1
MD 4201	Medical Dosimetry Review	2
RT 4199	Special Topics in Radiation Therapy	1
RT 4309	Special Applications in Radiation Oncology	3

*NOTE: Additional courses may be used as free electives with the approval of the Program Director.*

# Molecular Genetic Technology

Molecular genetic technologists study the role of genetics in medicine, Mendelian genetics, multifactorial inheritance, DNA structure, chromosome structure, population genetics, mutation rates, ethnicity of disease and genetic mapping.

## Degree Offered

Bachelor of Science in Molecular Genetic Technology

## Program Administration

**Program Director** Peter Hu, Ph.D., MLS(ASCP)<sup>CM</sup> CG<sup>CM</sup> MB<sup>CM</sup>, FACS

**Education Coordinator** Irene Newsham, Ph.D., MB(ASCP)<sup>CM</sup>, FACS

**Medical Advisor** Rajya Luthra, Ph.D.

## The Program in Molecular Genetic Technology

### Mission

The MD Anderson Cancer Center Program in Molecular Genetic Technology, in concert with the mission and vision of The University of Texas MD Anderson Cancer Center, is committed to the education of technically and academically competent graduates prepared to meet the immediate and future needs of the Molecular Genetic Technology profession.

### Objectives

The Molecular Genetic Technology program is designed to prepare students to become entry-level clinical molecular genetic technologists. The program provides instruction in major areas of the field such as:

- Cancer molecular genetic testing
- DNA forensic science testing
- Infectious disease testing
- Pre- and Post-natal genetic disorder testing

The curriculum provides didactic training followed by directed clinical training at affiliated hospitals and laboratories. Students may enter the program to pursue a Bachelor of Science degree and program faculty help each student develop a focal point related to the learner's area of interest. In the course of their training, students learn how to detect DNA polymorphisms and interpret a variety of DNA and RNA assays. They also develop an understanding of the essential elements of statistics and population genetics.

While students study molecular diagnostic procedure such as recombinant DNA technology and its application to the clinical laboratory, their laboratory experiences may include but are not limited to:

- DNA and RNA extraction
- Hybridization methods
- Microarray technology
- Next generation sequencing
- PCR, primer design, real-time PCR and Melt Curve Analysis
- Sanger sequencing and fragment analysis

Students also focus on the specific applications of molecular techniques within such disciplines as:

- Bacteriology
- Forensics
- Genetic disease of inheritance
- Infectious disease
- Oncology
- Paternity

Professionals in the field have a wide range of career options. As the Human Genome Project leads to the discovery of an increasing number of genes important in human disease processes, molecular genetic technologists will play an ever-increasing role in diagnostic patient care.

Employment opportunities include:

- Biotechnology companies
- Cancer centers
- Chemical industries
- Computer imaging sales and development
- Pediatric clinics
- Research and teaching institutions
- Research, molecular cytogenetic and pathology laboratories

Some molecular genetic technologists combine administrative and managerial talent with their technical background to become laboratory or hospital administrators.

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA, Science and Math GPA
- Personal qualities such as maturity and professional goals as expressed in the interview and described in reference letters.
- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply](#) page for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

### Program Admission Requirements

The Bachelor of Science degree is either a one-year or two-year program with entry at either the junior or senior level. Application and supporting documents must be submitted to the [Office of the Registrar](#). Qualified students are accepted on a rolling basis.

Applicants to the Program in Molecular Genetic Technology must satisfy the following requirements for admission:

**All prerequisite coursework** must be from a regionally accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**A minimum GPA** of 2.5 on a 4.0 scale both overall and in science and mathematics courses is required to be considered for admission. Special circumstances may be considered, but at the discretion of the Admissions Committee.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL section](#) of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

### Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 60 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 18 SCH. Within these 60 SCH, the following 24 SCH must be included:

- \*8 SCH in Biological Sciences
- \*16 SCH in Chemistry to include Organic Chemistry and /or Biochemistry

*\*Note: 12 of the above 24 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

### For the One-Year Program

Students must complete a minimum of 90 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 48 SCH. Within these 90 SCH, the following must be included:

- 3-4 SCH of Microbiology
- 3-4 SCH of Genetics
- 8 SCH in Biological Sciences
- 12 SCH of upper-level courses
- 16 SCH in Chemistry to include Organic Chemistry and /or Biochemistry

### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty is consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of the School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to the School of Health Professions courses with the results being reported to the Registrar.

### Graduation

Each candidate for a baccalaureate degree must complete a minimum of 135 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework.
- At least 25% of the total SCH required must be taken at MD Anderson.

Graduation occurs in August. Upon graduation, students are eligible to take the national certification exam in molecular biology given by the ASCP.

Please check with the program director for application deadlines and exam dates. Upon passing the exam, the student is considered a certified molecular genetic technologist. The awarding of the degree is not contingent upon a student passing the national certification exam.

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## Curriculum

This intensive two-year program is composed of a didactic phase followed by directed clinical training at affiliated hospitals and laboratories. During the didactic phase, formal lectures are presented on the principles of medical genetics, molecular and biochemical basis of genetic disease, hematology, clinical molecular genetics and molecular genetic technology. Laboratory sessions coordinated to lectures and covering the fundamentals of diagnostic laboratory procedures are included in the didactic phase.

### Current Affiliations

During the clinical phase of instruction, training and supervision are provided in affiliated clinical laboratories. The locations are subject to change depending on availability on a year-to-year basis. Visit the

[Molecular Genetic Technology Program page](#) for a list of current affiliations.

### Accreditation

The Molecular Genetic Technology program is accredited and has conformed its curriculum to the standards published and monitored by [NAACLS](#).

### Course listings

#### Junior Year

Refer to the [Junior Year for Laboratory Sciences](#) section of this catalog.

#### Senior Year\* (44 SCH)

CC 4120	Introduction to G-band Karyotyping	1
GT 4300	Advanced Medical Genetics	3
GT 4330	Genetics of Hematology Malignancies	3
HS 4110	Molecular Genetics Technology	1
HS 4371	Management and Education	3
MG 4111	Bioinformatics for Clinical Diagnostics Laboratory I	1
MG 4160	Genetic Technology Journal Club I	1
MG 4200	Bioinformatics I	2
MG 4211	Molecular Diagnostic Techniques	2
MG 4280	Concepts in Molecular Diagnostics	2
MG 4281	Advanced Concepts in Molecular Diagnostics	2
MG 4290	Clinical Disease Applications of Molecular Genetics	2
MG 4310	Molecular Diagnostic Techniques Laboratory II	3
MG 4320	Molecular Diagnostic Techniques Laboratory III	3
MG 4510	Molecular Diagnostic Techniques Laboratory I	5
MG 4560	Molecular Diagnostics Clinical Rotation I	5
MG 4570	Molecular Diagnostics Clinical Rotation II	5

\*Students entering the School of Health Professions for the first time at the Senior level must take the following additional required courses:

- HS 4100 Health Care Ethics (1)
- HS 4101 Diversity and Cultural Competence (1)

# Radiation Therapy

Radiation therapy involves the administration of ionizing radiation for the treatment of cancer and other related conditions. The field of Radiation Therapy presents the professional with the unique opportunity to blend the knowledge of mathematics, medical science, psychology and critical thinking while providing hands-on patient care.

## Degree Offered

Bachelor of Science in Radiation Therapy

## Program Administration

**Program Director** Shaun T. Caldwell, M.S., R.T.(R)(T)  
**Education Coordinator** Jessica Church, M.P.H., RT(R)(T),CMD  
**Medical Advisors** Eric A. Strom, M.D., F.A.C.R.

## The Program in Radiation Therapy

### Mission

The mission of the Radiation Therapy Program is to provide the highest quality of education to radiation therapy students through formal didactic and state-of-the-art clinical experiences that prepare the student to deliver superior patient care and treatment in all aspects of radiation therapy.

### Vision

We shall be the premier provider of education for radiation therapy professionals based on best practices and research in radiation oncology.

### Objectives

The MD Anderson Program in Radiation Therapy is designed to prepare students for a challenging career in cancer treatment through formal education including: human anatomy, physiology, radiation therapy physics, radiation oncology, pathology, radiation biology, medical dosimetry, quality assurance and patient care.

### Goals and Student Learning Outcomes

Our students will:

- be clinically competent
- be critical thinkers
- be effective communicators
- demonstrate professionalism.

#### Goal: Clinical Competence

Student Learning Outcomes: The student will:

1. Accurately assesses the patient's status prior to discharge from their care.
2. Demonstrate reproduction of the patient's initial setup.
3. Check a variety of sources for current patient information

#### Goal: Critical Thinking

Student Learning Outcomes: The student will:

1. Evaluate and interpret data.
2. Recognize discrepancies in treatment.
3. Develop solutions to clinical situations.

#### Goal: Effective Communication

Student Learning Outcomes: The student will:

1. Communicate with patients
2. Demonstrate written communication skills
3. Demonstrate oral presentation skills

#### Goal: Demonstrate Professionalism

Student Learning Outcomes: The student will:

1. Discuss patient information and setup out of hearing of inappropriate people.
2. Assume full responsibility for their actions.
3. Take instruction, discipline, correction, guidance and direction.
4. Model professional behavior under specific scenarios.

## Selection Process

Admission is dependent on factors that include

- Ability to meet the School of Health Professions non-academic technical standards
- Clinical site visit evaluation. Call the RT Program Office to receive the required Clinical Site Visit form and the HIPAA consent form.
- Cumulative GPA and prerequisite GPA
- Personal qualities such as maturity and professional goals as expressed in the interview and described in reference letters.
- Previous educational experience and assessment of current knowledge in Anatomy, Physiology, Mathematics, Physics and problem solving
- Race, religion, national origin, veteran status, gender, or disability are not factors considered in the selection process

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply](#) page for application dates.

## Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

## Program Admission Requirements

The Bachelor of Science in Radiation Therapy is a two-year program for certification and degree completion, with entry at the junior level. Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Program in Radiation Therapy must satisfy the following requirements for admission to the Bachelor of Science degree program.

**All prerequisite coursework** must be from a regionally accredited college or university.

**The applicant must have satisfactorily completed** all prerequisite courses listed prior to graduating. These courses must be lecture and laboratory courses acceptable toward a degree by majors in those fields and cannot be survey courses.

**Candidates who completed the prerequisite courses** seven or more years before admission may need to update their academic skills. For specific information, contact the program director.

**Clinical site visit evaluation** Download and print the Clinical Site Visit Form, Download and print the HIPAA Consent Form

**Minimum overall GPA** of 2.5 on a 4.0 scale.

**Texas Success Initiative:** All applicants must provide proof of successful assessment of the TSI. Refer to the [TSI section](#) of this catalog.

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

### Automatic Admission

An applicant is entitled to automatic admission as an undergraduate student if the applicant meets any minimum requirements established by the institution and is a child of certain public servants who were killed or sustained a fatal injury in the line of duty ([TEC, §51.803\(e\)](#)).

## Prerequisites

Several physical education and military sciences are not acceptable for discipline-specific prerequisites.

### Texas Core Curriculum

Students must complete the Texas Core Curriculum and prerequisite courses elsewhere prior to transferring into the School of Health Professions. The courses may be taken at any regionally accredited college/university. Refer to the [Texas Core Curriculum](#) section of this catalog.

### For the Two-Year Program

Students must complete a minimum of 46 SCH that includes the Texas Core Curriculum (42 SCH) and an additional 4 SCH. Within these 46 SCH, the following 19 SCH must be included:

- 3 SCH in Pre-Calculus
- \*8 SCH in Anatomy and Physiology I and II
- \*8 SCH in Physics I and II (Algebra-based)

*\*Note: 12 of the above 16 SCH may be satisfied by the Life and Physical Sciences Texas Core course selection.*

The following additional prerequisite courses are recommended, but not required:

- 3 SCH in Interpersonal Communication
- 3 SCH in Philosophy and Critical Thinking
- 3 SCH in Introduction to Sociology in Healthcare

### Advanced Placement

The School of Health Professions accepts and/or awards credit through the following examination programs\*:

- College level examination program of the College Board
- Comprehensive departmental examinations
- Regionally accredited military training programs

*\*Note: The student that is either admitted or readmitted will undergo an evaluation process related to awarding course credits, if applicable.*

Recommendations from the School of Health Professions' academic departments are followed with regard to minimum score requirements, level of credit and amount of credit to be awarded. Program faculty are consulted to determine if credit recommendations equate to specific School of Health Professions courses. The internal comprehensive departmental examination program provides a local means for establishing knowledge of School of Health Professions course content in areas not covered by the above examination program. Programs may elect to administer examinations that cover material specific to School of Health Professions courses with the results being reported to the Registrar.

### Graduation

Each candidate for a baccalaureate degree must complete a minimum of 120 SCH of coursework. Within this requirement, students must complete the following at MD Anderson:

- At least 40 SCH of upper-level coursework
- At least 25% of the total SCH required must be taken at MD Anderson

Upon completion of formal didactic and clinical education, students will have demonstrated the professional skills necessary to plan, deliver and record a prescribed course of radiation including proton therapy.

Graduation occurs in August. Upon graduation, students are eligible to take the national certification exam administered by the ARRT.

Please check with the program director for application deadlines and exam dates. Upon passing the exam, the student is considered a certified Radiation Therapist. The awarding of the degree is not contingent upon a student passing the national certification exam.

DI 2342	Principles of Radiographic Exposure II	3
DI 4300	Research Techniques in Radiologic Sciences	3
DI 4301	Research Project	3
DI 4304	Sectional Anatomy	3
DI 4350	Introduction to Computed Tomography	3
HS 4100	Health Care Ethics	1
HS 4101	Diversity and Cultural Competence	1
HS 4111	Medical Law	1
HS 4300	Pathophysiology for Health Professions	3
HS 4303	Advanced Pathophysiology	3
RT 3101	Simulation and Treatment Techniques I	1
RT 3103	Simulation and Treatment Techniques II	1
RT 3220	Clinical Education I	2
RT 3221	Clinical Education II	2
RT 3222	Clinical Education III	2
RT 3345	Directed Readings	3
RT 4101	Radiation Safety and Protection	1
RT 4156	Individual Projects	1
RT 4210	Radiobiology	2
RT 4295	Capstone	2
RT 4302	Anatomy for Radiation Oncology	3
RT 4305	Patient Care in Radiation Oncology	3
RT 4306	Technical Radiation Oncology	3
RT 4309	Special Applications in Radiation Oncology	3
RT 4310	Radiation Therapy Physics	3
RT 4311	Radiation Therapy Treatment Planning and Dosimetry	3
RT 4312	Quality Management in Radiation Therapy	3
RT 4313	Clinical Radiation Oncology I	3
RT 4320	Clinical Education IV	3
RT 4321	Clinical Education V	3
RT 4322	Clinical Education VI	3
RT 4390	Adaptive Radiation Therapy	3

## Curriculum

The curriculum meets or exceeds the national curriculum of the ASRT. This intensive two-year program is composed of a didactic and directed clinical training at affiliated hospitals. Formal lectures cover human anatomy, physiology, radiation therapy physics, radiation oncology, pathology, radiation biology, treatment planning, dosimetry, quality assurance and patient care.

### Current Affiliations

During the clinical phase of instruction, training and supervision are provided in a variety of clinical sites. Visit the [Radiation Therapy Program page](#) for a list of current affiliations.

### Accreditation

The Radiation Therapy Program is accredited by and meets the standards and guidelines of the [JRCERT](#).

### Course Listings

#### Junior/Senior Years (70 SCH)

DI 2301	Principles of Radiographic Exposure I	3
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# Master of Science in Diagnostic Genetics

The Graduate Program in Diagnostic Genetics concentrates on the mastery of interpretive skills in major areas of the field including:

- Pre and Post-natal genetic disorder testing
- Cancer genetics testing
- Infectious disease testing and public health surveillance
- Forensic science DNA-based testing
- Conventional G-Banded Cytogenetics
- Bacterial, model organism and human genomics
- Bioinformatics in diagnostic genetics and genomics
- Statistics in diagnostic genetics and genomics

## Degree Offered

Master of Science in Diagnostic Genetics, with Emphases in

- Cytogenetics and Cytogenomics
- Molecular Genetics and Genomics

## Program Administration

**Program Director** Peter Hu, Ph.D., MLS(ASCP)<sup>CM</sup> CG<sup>CM</sup> MB<sup>CM</sup>, FACSc

**Graduate Coordinator for Cytogenetics and Cytogenomics** Ming Zhao, M.D., CG(ASCP)<sup>CM</sup>

**Graduate Coordinator for Molecular Genetics and Genomics** Awdhesh Kalia, Ph.D., MB(ASCP)<sup>CM</sup>, FACSc

## The Program in Diagnostic Genetics

### Mission

The University of Texas MD Anderson Cancer Center Master's Program in Diagnostic Genetics, in concert with the mission and vision of The University of Texas MD Anderson Cancer Center, is committed to the education of technically and academically outstanding graduates prepared to meet the immediate and future needs of molecular diagnostic laboratories and allied health teaching.

### Objectives

Newer technologies, affordable and faster human, bacterial, viral and metagenome sequencing and superfast computing capabilities have thrust precision medicine into the national spotlight. A major bottleneck in moving precision medicine from bench to clinical health personnel who can implement genomics and associated bioinformatics and statistical genetics tools in routine molecular and cytogenetics diagnostic laboratories.

Diagnostic Genetics students study genetics and its relationship to disease. To prepare students for the world in which they will work, education and training programs need to bring more genomic and bioinformatics education to the classroom and laboratories in precision medicine era. Thus, the Diagnostic Genetics program is geared towards integrating classroom knowledge on the structure and function of chromosomes and genomes with hands-on experience on using sophisticated tools for the analysis and interpretation of genomic data. The program aims to empower our graduates to take leadership positions in enabling rapid, precise clinical testing of results as part of the healthcare team to aid in diagnosis, prognosis and choosing of appropriate therapies. Consequently, Diagnostic Genetic graduates enjoy a wide range of career options in:

- Biotechnology companies, R&D (assay development) and sales
- Diagnostic labs within a hospital setting
- Pharmaceutical industry including R&D (assay development) and sales
- Research, laboratories, including Lab manager and research associate positions
- Teaching institutions: including Instructor/Faculty positions

### Selection Process

Admission is dependent on factors that include

- Cumulative GPA
- Science and Math GPA

- GRE scores or current clinical certification in MB, CG, or MLS through the ASCP. These certified applicants must include their test scores.
- Applicant's personal qualities such as maturity, ethical integrity, ability to handle stressful situations and the applicant's long-term professional goals
- Reference letters
- Assessment scores (taken on the date of the interview)
- Ability to meet the School of Health Professions non-academic technical standards
- Race, religion, national origin, veteran status, gender, sexual orientation or disability are not factors considered in the selection process.

Applicants should begin the application process three to six months prior to the application deadline to ensure all documents are received and processed by the [Office of the Registrar](#). Refer to the School of Health Professions [How to Apply page](#) for application dates.

### Nonacademic Requirements

Refer to the [Nonacademic Requirements](#) section of this catalog.

Admission to the graduate program is highly competitive. The program may accept 6-8 qualified students from among the applicant pool in any given academic year. Applicants are encouraged to begin the application process three to nine months prior to the application deadline to ensure all documents are received and processed by the Office of the Registrar.

### Program Admission Requirements

The Graduate Program in Diagnostic Genetics is a full-time two-year program with entry at the post-baccalaureate level and culminating with a Master of Science degree. Application and supporting documents must be submitted to the [Office of the Registrar](#).

Applicants to the Program in Diagnostic Genetics must satisfy the following requirements for admission:

**Educational requirement** at a minimum is a bachelor degree in biological sciences, biochemistry, chemistry, or related majors with emphasis on genetics/biochemistry courses. Applicants already holding M.S. and/or Ph.D. degrees are also encouraged to apply.

**All prerequisite coursework** must be from a regionally accredited college or university. Physical education and military science courses are not acceptable for prerequisite credit.

**Minimum GPA** of 3.0 on a 4.0 scale is required to be considered for admission. GPA may be evaluated by the following: overall, science and mathematics coursework and last 60 SCH or combinations of all of the above. Special circumstances may be considered, but at the discretion of the Admissions Committee.

**Applicants holding current Clinical Certification** through the ASCP in MB, CG, or MLS are exempt from taking the Graduate Record Exam (GRE). Proof of ASCP Certification and test scores must be submitted in order to claim this exemption.

**Applicants without ASCP Clinical Certification** in the above fields must take the General Test of the Graduate Record Examinations (GRE) that includes the analytical portion. *NOTE: The GRE Designated Institution Code for The University of Texas MD Anderson Cancer Center is 0490.*

**Applicants with previous graduate degrees**, e.g. M.S. or Ph.D., may request a waiver of the GRE at the discretion of the Admission's Committee.

**Three reference letters** from individuals who are in a position to evaluate the applicant's personal attributes and their academic and laboratory skills.

### Personal interview

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

### Prior Coursework and Experience

Coursework or prior work experience in the following areas of study is strongly recommended:

- Bioinformatics
- Cell Biology
- Cytogenetics/Karyotyping
- Evolutionary Biology/Biochemistry
- Genetics and Genomics
- Laboratory and/or research experience with modern molecular techniques
- Microbiology/Bacteriology
- Molecular Biology
- Statistics
- Other relevant coursework or work experience

## Graduation

Each candidate for a master's degree must complete:

- A minimum of 46 SCH of coursework
- Presentation of a poster at a local, state, or national conference and/or publication emanating from research work
- The successful defense of a written clinical application research thesis

Upon graduation, students are eligible to take the national certification exam in either molecular biology or cytogenetics given by the ASCP depending upon the curriculum track for which the student is seeking certification. (Once the student is admitted to the program, the Program Director will meet with the student to discuss the certification eligibility routes.) In some instances, students may be eligible for dual certification.

## Curriculum

An integral part of the MS curriculum is pursuing applied (clinical and basic translational) research. Students are required to select and identify their program mentors and related research laboratories during the first semester of the program. The curriculum includes didactic coursework followed by directed clinical training at affiliated hospitals and laboratories. For further details about the curriculum, please refer to the Coursework section below, or contact the [Program Director](#).

### Affiliations for Clinical Rotation

An integral part of the M.S. to perform clinical and translational laboratory research. In consultation with program advisors, students identify their mentors and related research laboratories during the first semester of the program. The curriculum includes didactic coursework followed by directed clinical laboratory training in molecular or cytogenetic diagnostic labs at affiliated institutions listed on the [Diagnostic Genetics Program page](#).

### Clinical and Translational Laboratory Research

The Diagnostic Genetics Program aims to make an important contribution to improving health care through applied research. With participating Principal Investigators drawn from several institutions within the Texas Medical Center whose research interests encompass a wide range of research topics, these goals are attainable through collaborative, interdisciplinary and outcome-based clinical research and clinical applications

### Funding Opportunities

Working through the financial aid office of UTHealth, prospective students may be funded through a variety of sources including federal, state and departmental funds. These funds come in the forms of loans, grants and scholarships

### Accreditation

The Molecular Genetic Technology program is accredited and has conformed its curriculum to the standards published and monitored by [NAACLS](#).

### Course Listings

Students must maintain an overall 3.0 average to graduate.

#### Cytogenetics and Cytogenomics Track (46 SCH)

DG 6100	Clinical Research Seminar I	1
DG 6120	Intermediate Karyotyping	1

DG 6152	Clinical Prenatal Cytogenetics	1
DG 6201	Advanced Practice IC	2
DG 6230	Cancer Cytogenetics	2
DG 6240	Abnormal Case Studies and Comprehensive Review	2
DG 6270	Advanced Topics in Clinical Cytogenetics	2
DG 6290	Diagnostic Molecular Pathology	2
DG 6333	Quantitative Research and Advanced Statistics	3
DG 6350	Clinical Laboratory Cytogenetics	3
DG 6501	Advanced Practice III	5
DG 6521	Clinical Cytogenetics Rotation I	5
DG 6530	Clinical Cytogenetic Laboratory Techniques	5
DG 6531	Clinical Cytogenetics Rotation II	5
DG 6701	Advanced Practice IIC	7

#### Molecular Genetics and Genomics Track (46 SCH)

DG 6100	Clinical Research Seminar I	1
DG 6110	Bioinformatics in Diagnostic Genetics Lab I	1
DG 6280	Concepts in Molecular Diagnostics	2
DG 6290	Diagnostic Molecular Pathology	2
DG 6320	Bioinformatics in Diagnostic Genetics I	3
DG 6333	Quantitative Research and Advanced Statistics	3
DG 6340	Bioinformatics in Diagnostic Genetics II	3
DG 6401	Advanced Practice I	4
DG 6501	Advanced Practice III	5
DG 6510	Advanced Diagnostic Molecular Laboratory Techniques	5
DG 6560	Clinical Molecular Rotation I	5
DG 6570	Clinical Molecular Rotation II	5
DG 6701	Advanced Practice II	7

# Master of Science in Radiologic Sciences

The Master of Science Program in Radiologic Sciences offers two pathways, with options to specialize in administrative or educational leadership. Either emphasis provides you with the knowledge and skills essential for your professional advancement through many positions in healthcare and higher education. The interdisciplinary perspective and cross-functional design of the program prepares you to be successful in tackling multifaceted challenges amidst increased expectations and constrained resources in radiologic sciences or higher education.

## Degree Offered

Master of Science in Radiologic Sciences, with Emphases in

- Administrative Leadership
- Educational Leadership

## Program Administration

**Program Director** William Undie, Ed.D., R.T.(R)(T)

**Graduate Coordinator** Kevin Clark, Ed.D., R.T.(R)(QM)

**Medical Advisor** Aurelio Matamoros, M.D.

## The Program in Radiologic Sciences

### Mission

The Master of Science program in Radiologic Sciences, in concert with the mission and vision of The University of Texas MD Anderson Cancer Center, is committed to the education of technologically and academically outstanding graduates prepared to meet the immediate and future needs of diagnostic and therapeutic services in radiologic sciences.

### Objectives

The emerging healthcare environment has created pressures that have heightened the need for innovative and dynamic leadership. There is an urgent need for individuals who embody effective and compassionate care in a cost-efficient and integrated healthcare system. Further, there is a shortage of qualified educators to fill many job positions in the radiologic sciences profession; the situation is expected to escalate in the next decade as vacancy rates increase due to attrition, retirement, industry growth and limited numbers of academic programs. Thus, this leadership program is intended to enhance your knowledge, expand your critical thinking skills and strategically position you for a leadership position in health care and academic environment.

Graduates of the program have a variety of opportunities to serve as:

- Corporate trainer for healthcare facilities by leading the development and implementation of training programs for employees
- Director or Manager for hospital or out-patient imaging facilities
- Instructor/professor for radiologic sciences programs
- Program Director or Educational Coordinator for radiologic sciences programs

### Goals

The goals of the program are to enhance your ability to:

- Synthesis the knowledge gained from radiologic sciences and other academic disciplines to advance strategic planning and operations in healthcare or higher education.
- Promote the delivery of quality health care by assuming leadership roles in the radiologic sciences professions and health care system.
- Apply the knowledge acquired from independent, collaborative and interdisciplinary empirical research efforts to help improve healthcare services or higher education.

### Program Admission Requirements

Applicants to the Radiologic Sciences program must satisfy the following requirements for admission:

**Bachelor degree** from an accredited institution

**Credentialed** by one ARDMS, ARRT, MDCB or NMTCB.

**Official college transcript(s)** from each school attended.

**Minimum overall undergraduate GPA** of 3.0 on a 4.0 scale.

**Undergraduate course** in either math statistics or basic research with a minimum grade of C

**A 500-word statement of purpose** outlining your goals for pursuing a graduate degree in Radiologic Sciences. Must include the following elements:

- The reason for applying to the Administrative or Educational emphasis
- Describe how this degree program will contribute to advancing your career goals
- Explain what you have accomplished that demonstrates your initiative and willingness to learn
- Describe how you will contribute to the program through your research experience
- Describe your experiences working in teams
- State other relevant attributes or background you think will assist the admission committee evaluate your application

**The School of Health Professions recommendation form**

completed by three professional references to support the applicant's leadership ability or potential for success

**Resume** to include education, work history and research experience

**Test of English as a Foreign Language:** Applicants from countries where English is not the native language may be required to take the TOEFL. Refer to the [TOEFL](#) section of this catalog.

**Competitive applicants** will be invited to an admissions interview

### Graduation

Each candidate for a master's degree must complete:

- 30 SCH of graduate coursework
- A minimum of 45 hours of supervised internship in an area of health care administration or educational leadership
- Successful presentation and defense of a thesis based on research of a topic related to an area of specialization

## Curriculum

The Master of Science degree in Radiologic Sciences is a 5-semester program built on a cohort learning model. The cohort consists of applicants with various background in the radiologic sciences profession. The program consists of 12 SCH of programmatic core and 18 SCH of specialization classes, including practicum and thesis. The first two semesters are focused on completing the programmatic core component while students devote the remaining three semesters to their program specialty.

### Funding Opportunities

Working through the financial aid office of UTHealth, prospective students may be funded through a variety of sources including federal, state and departmental funds. These funds come in the forms of loans, grants and scholarships

### Accreditation

MD Anderson is regionally accredited through [SACS](#).

### Course Listings

#### Administrative Leadership Track (30 SCH)

RS 5310	Fundamentals of Healthcare Systems	3
RS 5311	Strategic Management and Business Policy	3
RS 5312	Research Methodology	3
RS 5313	Legal and Ethical Fundamentals of Healthcare	3
RS 6311	Healthcare Financial Management	3
RS 6312	Human Resource Management in Health Professions	3
RS 6316	Health Resources and Policy Analysis	3
RS 6317	Thesis	3

RS 6318	Health Informatics and Technology Management	3
RS 6319	Internship	3

**Educational Leadership Track (30 SCH)**

RS 5310	Fundamentals of Healthcare Systems	3
RS 5311	Strategic Management and Business Policy	3
RS 5312	Research Methodology	3
RS 5313	Legal and Ethical Fundamentals of Healthcare	3
RS 6313	Adult Learning and Instruction	3
RS 6314	Critical Thinking Strategies in Higher Education	3
RS 6315	Curriculum Development and Evaluation	3
RS 6317	Thesis	3
RS 6318	Health Informatics and Technology Management	3
RS 6319	Internship	3

## Course Descriptions

### Cytogenetic Technology

#### **CC 4120 Introduction to G-band Karyotyping** (1 SCH)

A detailed study of human G-banded chromosomes. Includes instruction in banding pattern recognition, polymorphic variation and determination of band level and the International System for Human Cytogenetic Nomenclature (ISCN). Includes classroom instruction and hands-on experience.

#### **CC 4152 Prenatal Cytogenetics** (1 SCH)

A study of indications for prenatal diagnosis and the procedures used to obtain specimens for such diagnoses: ultrasonography, cordocentesis, amniocentesis and CVS; biochemical assays for metabolic diseases; problems encountered in prenatal chromosome analysis; teratology; and explanations and demonstrations of prenatal cytogenetic techniques and procedures.

*Prerequisite:* CC 4120

#### **CC 4181 Independent Research Project II** (1 SCH)

This course is designed to allow students to have the opportunity to conduct independent research activities with guidance from their faculty advisor. Students are required to submit a formal proposal for review and approval by the program faculty.

*Prerequisite:* CC 4280

#### **CC 4210 Molecular and Biochemical Basis of Disease** (2 SCH)

A comprehensive study of cytogenetic disease using case studies. The relationships between molecular defect and the nature of its clinical pathology will be explored through the examination of biochemical pathways affected such as metabolic, transport, neurological and muscle and bone. In addition, cytogenetic analysis will be examined through the pre-analytical and analytical and post-analytical process. Students will build a foundation of critical decision-making and an understanding of the principles of the molecular and biochemical basis of cytogenetic disease.

#### **CC 4240 Advanced Cytogenetic Laboratory Techniques** (2 SCH)

A comprehensive study of the cytogenetic analysis of solid tumors. Course includes the study of tumor origin and development, mechanisms of transformation in carcinogenesis and random versus nonrandom findings in human solid tumors. The student will also study the mutagenic effects derived from lifestyle and environmental factors as they relate to malignant disease. This course combines both lecture and laboratory experience into one integrated learning experience.

*Laboratory Fee:* \$30.00

#### **CC 4250 Clinical Cytogenetics** (2 SCH)

A comprehensive study of chromosome morphology and terminology, general principles of clinical cytogenetics, abnormalities of chromosome number and structure, disorders of autosomes, sex chromosome disorders, the X chromosome, the Y chromosome, congenital versus acquired abnormalities and the ISCN.

*Prerequisite:* GT 4300

#### **CC 4251L Clinical Cytogenetics Laboratory** (2 SCH)

In this laboratory students will perform microscopic slide analysis of peripheral blood and bone marrow cases, and identify chromosome numerical and structural abnormality, applying standard analysis and reporting practices such as band level and ISCN.

#### **CC 4280 Independent Research Project I** (2 SCH)

This course is designed to provide students with an opportunity to independently explore a research area of interest related to cytogenetic technology. Students will perform a literature review. Class discussions will explore experimental design and searching the research literature.

#### **CC 4320 Special Topics in Genetics** (3 SCH)

This course will introduce the student to the newest methodologies and topics in genetics. Current topics include spectral karyotyping, creation of bac clone FISH probes, DNA sequencing, array comparative genomic hybridization (aCGH) and use of online genetic databases.

*Prerequisite:* HS 4110

#### **CC 4390 Advanced Topics in Cytogenetics** (3 SCH)

This will be a capstone course where students work on case studies to develop their problem solving skills in a clinical cytogenetic environment. Students will also participate in a national review in

clinical cytogenetics. Finally, students will show mastery of the field of cytogenetics through practice exams and eventually taking a comprehensive cytogenetic exam.

*Prerequisite:* GT 4300

#### **CC 4521 Prenatal Cytogenetics Clinical Rotation** (5 SCH)

This laboratory rotation complements, expounds on and practically applies the study of cytogenetic procedures and techniques used in diagnosis of chromosomal disorders. This laboratory rotation also provides the students an opportunity to observe and participate in the testing algorithms and reflex testing that occur in this type of cytogenetic testing environment.

*Prerequisite:* CC 4152 and CC 4250

#### **CC 4530 Basic Laboratory Techniques** (5 SCH)

A comprehensive study of maintaining laboratory quality control in accordance with federal, state and local regulations, as well as College of American Pathologist on-site inspections and proficiency testing. Also, a study of laboratory skills as they apply to amniotic fluid, chorionic villus sampling, abortus tissue, blood, bone marrow and solid tissue samples with respect to transporting, preparing, culturing, harvesting, banding, analyzing, photographing, karyotyping and reporting final results of specimens. Students will also be instructed in fluorescent in situ hybridization techniques and computer imaging of cytogenetic specimens.

*Laboratory Fee:* \$30.00

*Prerequisite:* GT 4300

#### **CC 4531 Cytogenetics of Hematological Malignant Clinical Rotation** (5 SCH)

This laboratory rotation provides the student with comprehensive practical applications in all aspects of the cytogenetic study of hematological malignant disease: specimen preparation, culture and harvest, banding techniques, microscopic cell analysis, photographic techniques, karyotype preparation, evaluation, probe application and ISCN. Quality control procedures and safety considerations are stressed.

*Prerequisite:* GT 4330

### Clinical Laboratory Science

#### **CL 4200 Core Laboratory Techniques Laboratory s** (2 SCH)

Laboratory emphasizes hands-on instruction in analytical and special chemistry procedures used to determine the composition of blood and urine, analytical techniques used to measure coagulation, perform manual procedures to quantify and identify cells in peripheral blood and operate, maintain and problem-solve procedures on a wide range of instruments

#### **CL 4210 Microbiology Student Laboratory** (2 SCH)

Student laboratory emphasizes the utilization of morphological, biochemical and serological characteristics for microorganism identification.

#### **CL 4231 Immunohematology Laboratory** (2 SCH)

Laboratory emphasizes hands-on instruction in basic blood bank techniques, resolution of compatibility problems and advanced antibody identification methods.

*Corequisite:* CL 4330

#### **CL 4260 Capstone Seminar** (2 SCH)

This course provides an integration of the information obtained by laboratory testing in the various laboratory disciplines.

*Prerequisites:* CL 4321, CL 4330, CL4400, CL4540, CL4245, HS 3330

#### **CL 4320 Diagnostic Microbiology** (3 SCH)

The course will study morphological, biochemical and serological methods for the identification of microorganisms, fungi, mycobacterium and viruses. Included in the course will be the correlation of these organisms with disease states and current methods of treatment.

#### **CL 4321 Clinical Microbiology** (3 SCH)

Clinical laboratory study of the utilization of morphological biochemical and serological characteristics for microorganism identification.

*Prerequisite:* CL 4320

#### **CL 4330 Immunohematology** (3 SCH)

An in-depth study of the basic principles of immunology, human blood group systems, blood group genetics and the theory and application of

blood bank techniques.  
*Laboratory Fee: \$30.00*

**CL 4332 Clinical Immunohematology** (3 SCH)  
Clinical laboratory study of the serodiagnostic studies of blood group identification and transfusion service procedures.  
*Prerequisite: CL 4231, 4330*

**CL 4345 Hemostasis** (3 SCH)  
An analysis of the mechanisms of hemostasis, the analytical techniques used to measure coagulation and the correlation of test results with hemostatic disorders.

**CL 4400 Clinical Chemistry** (4 SCH)  
A comprehensive study of the methods used to determine the chemical composition of body fluids. Study includes principles of analytical procedures and the correlation of test results with normal and abnormal physiological states including the study of special chemistry techniques, electrophoresis, radioimmunoassay, enzyme immunoassay and nephelometry.

**CL 4440 Clinical Hematology** (4 SCH)  
A comprehensive study of the formation of blood cells, functions of the hematopoietic system, related hematological disease, instrumentation and manual procedures to quantify and identify cells and analysis of the maturation cell sequence in peripheral blood, and the morphological characteristics of these cells. Flow cytometry will also be discussed.

**CL 4530 Clinical Core Rotation** (5 SCH)  
Clinical laboratory study of blood cell counts and special procedures, using manual and automated methodology. Operation, maintenance and troubleshooting of the hematological high volume analyzers. Manual cell counting and morphological interpretation of blood and bone marrow cells.  
*Prerequisites: CL 4400, CL 4440, HS 3330*

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## Cytotechnology

**CT 4101 Introduction to Cytotechnology** (1 SCH)  
The student is introduced to the ethics and liability of the profession, the use of the light microscope and the professional role of the cytotechnologist. The course also includes lectures on the basic cellular structure and function, cell division, the origins of clinical cytology, evaluation of the cell sample and slide marking.

**CT 4102 Theory and Practice of Cytopreparatory Techniques I** (1 SCH)  
The course consists of the basic study and practice of techniques used for handling cytological specimen preparation and fixation and staining of specimens for cytological study, including compliance with laboratory safety, biohazard precautions and HPV testing.

**CT 4107 Nongynecologic Cytopathology II** (1 SCH)  
Students will study the normal anatomy and physiology of the urinary tract, central nervous system and body cavities. They learn cytomorphology of benign and malignant conditions of these organs/sites.

**CT 4111 Theory and Practice of Cytopreparatory Techniques II** (1 SCH)  
The course consists of the advanced study and practice of techniques used for handling specimen preparation, fixation and staining of specimens for cytological study including compliance with laboratory safety and biohazard precautions. Special techniques include Thin-Prep processing, Autocyte preparation, Ficoll-Hypaque technique, cell block preparation and special stains (Gomori's methenamine silver and Diff-quick stains).

**CT 4114 Research Project** (1 SCH)  
Guided study and/or research on a specific cytopathological issue. Includes collection and study of cases, photography, literature reviews, compiling data and poster or paper presentation.

**CT 4118 Immunocytochemistry Image Analysis** (1 SCH)  
Introduction to theoretical knowledge and practical experience in these adjunct diagnostic techniques such as ancillary testing and Cytology-Histology Testing correlations.

**CT 4119 Cytogenetics and Fluorescent In Situ Hybridization** (1 SCH)

Introduction to cytogenetic study and Polymerase Chain Reaction (theoretical knowledge) and practical experience in fluorescent in situ hybridization technique.

**CT 4120 Laboratory Management** (1 SCH)  
Introduction to quality control and assurance, laboratory regulations, inventory methods, budgeting, information systems and leadership.

**CT 4209 Fine Needle Aspiration Cytopathology** (2 SCH)  
The study of normal anatomy and cytology of benign and malignant pathology and corresponding cytomorphological features of fine-needle aspiration specimens from lung, breast, thyroid, salivary gland, liver, pancreas, kidney, adrenal gland, bone, soft tissue, skin and lymph nodes.

**CT 4213 Nongynecologic Diagnostic Laboratory II** (2 SCH)  
The course consists of an advanced study of cytomorphological features of respiratory, gastrointestinal, urinary and central nervous systems and effusions for microscopic and clinical analysis of exfoliative Non-Gynecologic specimens. The students will have hands-on laboratory experience.

**CT 4216 Cytopathology Theory** (2 SCH)  
Medical terminology and comprehensive cytopathology theory review of Gynecological, Non Gynecological and Fine needle aspiration body sites/organs.

**CT 4217 Cytopathology Diagnostic Laboratory** (2 SCH)  
The student will learn to apply cytodifferential criteria on gynecological, Non-Gynecologic and fine-needle aspiration specimens and develop practical expertise in microscopic and clinical analysis of these specimens to provide an accurate diagnosis. The students will have hands-on laboratory experience.

**CT 4303 Gynecologic Cytopathology** (3 SCH)  
Students will study the normal anatomy, physiology and benign and malignant pathology of the female genital tract and corresponding cytomorphological features, as well as the value of cytological diagnosis in patient management.

**CT 4305 Nongynecologic Cytopathology** (3 SCH)  
Students will study the normal anatomy, physiology and benign and malignant pathology with corresponding cytomorphological features of the respiratory system and gastrointestinal tract. The value of cytological diagnosis in patient management is included.

**CT 4306 Nongynecologic Diagnostic Laboratory I** (3 SCH)  
The course consists of the application of cytomorphological features of the respiratory system and gastrointestinal tract for microscopic and clinical analysis of exfoliative Non-Gynecologic specimens from these organs. The students will have hands-on laboratory experience.

**CT 4308 Gynecologic Diagnostic Laboratory II** (3 SCH)  
The course consists of the application of cytodifferential criteria for microscopic analysis (screening, detecting, marking and diagnosing) and reporting cervicovaginal specimens in conjunction with clinical history. SurePath preparations are used as study material.

**CT 4310 Fine Needle Aspiration Diagnostic Laboratory** (3 SCH)  
The students will have hands-on laboratory experience as they learn to apply cytodifferential criteria and develop practical expertise in microscopic and clinical analysis of fine-needle aspiration specimens from lung, breast, thyroid, salivary gland, liver, pancreas, kidney, adrenal gland, bone, soft tissue, skin and lymph nodes with clinical correlation.

**CT 4312 Gynecologic Diagnostic Laboratory III** (3 SCH)  
The course consists of advanced application of cytodifferential criteria for microscopic analysis (screening, detecting, marking and diagnosing) and reporting cervicovaginal specimens on conventional and Thin Prep monolayer preparations in conjunction with clinical history. Quality control and clinical ethics are included.

**CT 4404 Gynecologic Diagnostic Laboratory** (4 SCH)  
The course consists of basic application of cytodifferential criteria for microscopic and clinical analysis (screening, detecting, marking and diagnosing) and reporting cervicovaginal specimens in conjunction with clinical history. Conventional pap smears and monolayer preparations of gynecologic specimens are used. The students will have hands-on laboratory experience.

### **CT 4715 Clinical Rotation (7 SCH)**

The student will have laboratory and clinical experience in all of the following laboratories: Laboratory Corporation of America, Cytology Laboratory; The University of Texas Medical Branch at Galveston; Quest Diagnostics Laboratory; The Methodist Hospital; MD Anderson Cytology Processing Laboratory; Fine-Needle Aspiration Clinics; and cytology specimen screening.

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## **Diversity, Disparities and Advocacy**

### **DDA 4311 Disparities in Health Care (3 SCH)**

This course introduces research and education which identifies determinants of disparities as well as interventions and policies designed to eliminate disparities within health care and treatment.

### **DDA 4312 Global Health Practice (3 SCH)**

This course introduces the student to the socio-cultural, political and economic determinants of health and health status at a global level; understanding the impact of cultural, ethical, lifestyle, social and economic causal factors that influence disease prevention, research, treatment and post care.

### **DDA 4313 Caring for the Aging Population (3 SCH)**

This course will define international disability classifications and provide a unifying framework for function and disability.

### **DDA 4314 Resources and Support for Accommodating Patients with Special Needs (3 SCH)**

Investigation of resources and best practices in accommodating patients with special needs.

### **DDA 4321 Accommodating Differences in the Healthcare Setting (3 SCH)**

This course explores how the cultural influences that impact patient care. Mental and physical abilities, sexual orientation and gender identity are discussed.

### **DDA 4322 Mentoring Across Difference (3 SCH)**

This course provides the skills to build successful professional mentoring relationships across cultural differences.

### **DDA 4323 Organizational Behavior and Leadership in Healthcare (3 SCH)**

This course presents effective strategies in management and leadership across cultural differences within a care centric work environment to create trust, respect and inclusiveness within healthcare teams.

### **DDA 4324 Clinical Preceptorship in Diversity (3 SCH)**

Students will be assigned to practice with a mentor in a health care diversity setting. The students will demonstrate their knowledge of content areas through projects, presentations and team activities.

### **DDA 4331 Patient Advocacy (3 SCH)**

This course will provide an understanding of this specialization in health care concerned with advocacy for patients, survivors and other populations.

### **DDA 4332 The Role of the Patient Advocate (3 SCH)**

This course will allow students to understand the role of an advocate. The primary roles of support, education, liaisons, policy and development of the framework for patient related outcomes.

### **DDA 4333 Health Care Policy and Practice (3 SCH)**

This course provides an understanding of the critical role of systematic evaluation in assessing the effectiveness of health services programs and policies.

### **DDA 4334 Clinical Preceptorship in Patient Advocacy (3 SCH)**

Students will be assigned to practice with a mentor in an advocacy setting. The students will demonstrate their knowledge of content areas through projects, presentations and team activities.

### **DDA 4341 Professional Development (3 SCH)**

This course is designed to provide the student with the understanding of professional behaviors and customs in the health care setting. Students will explore the complexity of the health care setting and the challenges of working as an interdisciplinary team.

### **DDA 4345 Capstone (3 SCH)**

This course will provide the student an opportunity to demonstrate mastery of the principles and concepts of diversity, disparities and

advocacy. Students will complete projects and activities associated with challenges in the current health care environment.

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## **Diagnostic Genetics**

### **DG 6100 Clinical Research Seminar I (1 SCH)**

Seminar based course that covers topics in genetics and related fields.

### **DG 6110 Bioinformatics in Diagnostic Genetics Laboratory (1 SCH)**

This course is an introduction to Bioinformatics – rapidly evolving science at the interface of computers and diagnostic genetics and genomics - with emphasis on molecular evolutionary and key algorithmic foundations. Thus, this course provides a conceptual framework underlying much of modern bioinformatics. Moreover, students will gain hands on experience with computer programs useful for context-driven analyses, data mining and discovery and characterization of gene/RNA/protein/genome sequences, evaluation of DNA/RNA/protein molecules as putative diagnostic markers through basic comparative genomic analyses applications based on Dynamic Programming, Hidden Markov Models, Bayesian Probability, Euler and de-Bruijn graphs, Burroughs-Wheeler transform etc. Students are assigned an independent project (*PICCDIn*) to demonstrate their aptitude and active learning skills (theoretical and Lab-based) through development of a bioinformatics pipeline epidemiological surveillance bacterial and viral genome sequences. This course runs in tandem with DG6320 (Bioinformatics in Diagnostic Genetics). This course is a part of the Project-based Integrated Core Curriculum Development Initiative (PICCDIn).

### **DG 6120 Intermediate Karyotyping (1 SCH)**

A continuation of CC4120, this intermediary course in human G-banded chromosome identification will be a case-based approach to the analysis of chromosome abnormalities commonly seen in constitutional and oncologic cases. Students will apply the International System for Human Cytogenetic Nomenclature (ISCN) and be prepared to perform literature reviews and in class case discussions.  
*Laboratory Fee: \$30.00*

### **DG 6152 Clinical Prenatal Cytogenetics (1 SCH)**

Cytogenetic analysis is the single most frequent test used in laboratory prenatal diagnostic studies. This course summarizes the current status of the field, including diagnostic problems in the laboratory and the clinical problems associated with communicating unexpected laboratory findings. Students will correlate cytogenetic analysis with fetal loss, biochemical screening, ultrasonography, prenatal genetic profiling and fluorescence in situ hybridization. Hands-on laboratory activities included POC dissection, in situ culture set up and harvesting and chromosome analysis of abnormal prenatal cases. Case study analysis will include abnormality identification and drafting of mock written clinical reports.

### **DG 6201 Advanced Practice IC (2 SCH)**

This is a hypothesis-based original research study. Student must fulfill the requirements of a master's level applied research work including an approved proposal by the faculty advisor and the Diagnostic Genetics core committee 1 month before the beginning of the term. Graduation with an applied research project is subject to approval by the applied research committee and program core committee requires the student to present their projects to a faculty committee both orally and in writing.

### **DG 6230 Cancer Cytogenetics (2 SCH)**

A comprehensive study of the principles and procedures used in the genetic analysis of peripheral blood, bone marrow, and tissue in the study of malignant processes. The course emphasizes the genetic abnormalities occurring in leukemias, lymphomas, solid tumors and their clinical significance. Students will learn a multidisciplinary approach in the interpretation of disease diagnosis, prognosis and progression by learning how to integrate morphology, pathology and flow test results together with genetic changes. Course includes the study of tumor origin and development, mechanisms of transformation in carcinogenesis, and random versus nonrandom findings in human solid tumors. This course combines both lecture and laboratory experience into one integrated learning experience.

### **DG 6240 Abnormal Case Studies and Comprehensive Review (2 SCH)**

A continuation of DG6120 Intermediate Karyotyping. This advanced

course in G-banded chromosome identification requires students to apply cytogenetic knowledge and karyotyping skills to solve either complex pre/postnatal or oncologic cytogenetic cases. Students will be required to apply the International System for Human Cytogenetic Nomenclature (ISCN) for their analysis and present their case studies.  
*Laboratory Fee: \$30.00*

#### **DG 6280 Concepts in Molecular Diagnostics (2 SCH)**

The primary goal of this course is to familiarize students with the fundamental molecular, pathologic, genetic and genomic concepts that drive the development and practice of 'diagnostics genetics'. Course discussions held within the framework of evidence-based lab medicine focus on the contributions of diagnostic genetics and genomics in disease diagnosis, prevention and in personalized therapy. Topics comprise four overlapping areas: 1) Theoretical foundations of Molecular Diagnostic Techniques 2) Concepts in Genomics and Transcriptomics; 3) Established Applications of Molecular Methods: Cancer and Infectious Disease Diagnostics; Pharmacogenomics and related topics; and, 4) Development and Evaluation of New Molecular Tests - via PICDIn and critical analyses of recent publications. Where required, appropriate CLIA requirements and CLSI guidelines will be discussed to highlight the implementation of Quality Assessment (QA) and Quality Control (QC) in molecular diagnostic tests.

#### **DG 6270 Advanced Topics in Clinical Cytogenetics (2 SCH)**

This capstone course integrates learning from all previous taught courses. It is a student-centered course aim to develop critical thinking and knowledge synthesis skills as a cytogenetic technologist. Students will work on case studies to develop their problem solving skills in a clinical cytogenetic environment. Students will also participate in a national review in clinical cytogenetics and a mock CAP inspection. Finally, students will show mastery of the field of cytogenetics through completing essays, written scenarios, practice exams and eventually taking a comprehensive cytogenetic exam.

#### **DG 6290 Diagnostic Molecular Pathology (2 SCH)**

Focuses on the specific applications of molecular techniques within a variety of disciplines. The disciplines covered include molecular cytogenetics, immunology, infectious diseases, oncology, prenatal and postnatal disorders and transplantation immunology. Participants will be evaluated by both theoretical and application knowledge through exams and a written paper.

#### **DG 6320 Bioinformatics in Diagnostic Genetics I (3 SCH)**

This course is an introduction to Bioinformatics – rapidly evolving science at the interface of computers and diagnostic genetics and genomics - with emphasis on molecular evolutionary and key algorithmic foundations. Thus, this course provides a conceptual framework underlying much of modern bioinformatics. Moreover, students will gain hands on experience with computer programs useful for context-driven analyses, data mining and discovery and characterization of gene/RNA/protein/genome sequences, evaluation of DNA/RNA/protein molecules as putative diagnostic markers through basic comparative genomic analyses applications based on Dynamic Programming, Hidden Markov Models, Bayesian Probability, Euler and de-Bruijn graphs, Burroughs-Wheeler transform etc. Students are assigned an independent project (*PICCDIn*) to demonstrate their aptitude and active learning skills (theoretical and Lab-based) through development of a bioinformatics pipeline epidemiological surveillance bacterial and viral genome sequences. This course runs in tandem with DG6110 (Bioinformatics Labs). This course is a part of the Project-based Integrated Core Curriculum Development Initiative (PICCDIn).

#### **DG 6333 Quantitative Research and Advanced Statistics (3 SCH)**

An overview of inferential statistics as a foundation for subsequent linear regression analysis and model development. Big Data analysis using R, focusing on Linear and Logistic Regression, Classification, Resampling methods, Variable selection, Shrinkage and Dimension reduction methods. Emphasis on model development and analysis for diagnostic applications.

#### **DG 6340 Bioinformatics in Diagnostic Genetics II (3 SCH)**

This course will introduce the students to Advanced Bioinformatics toolkits with special emphasis on (i) Molecular Phylogenetic and Population Genetics and (ii) post Next-Generation Sequencing Analytical Strategies pipelines. Students will be introduced to theoretical foundations of advanced phylogenetic hypothesis testing, including model selection, detection of recombination and selection from MSAs, comparison of phylogenies etc. Students will learn to

measure fundamental population genetic statistics such as mutation and recombination rates, linkage disequilibrium, gene flow, genetic differentiation with using human and other reference sequence datasets. Students will focus on analyzing and validating SNP and SNVs from whole genome and exome sequencing datasets; will learn to implement the RNA-seq analysis for quantifying gene expression in disease and control cases; and will learn ChIP-seq data analysis using reference sequence data sets. Students will learn to implement advanced molecular phylogenetic tools for testing tumor evolution and other diseases. Students will be assigned an independent project to perform sophisticated bioinformatics analysis on high throughput NGS data, which could be from their own thesis projects (if thesis involves NGS analysis) or assigned by the Faculty (if thesis does not involve NGS analysis).

#### **DG 6350 Clinical Laboratory Cytogenetics (3 SCH)**

A blended learning experience of lecture instruction, class discussion and hands-on clinical laboratory practice on general principles of clinical cytogenetic study. Students will be exposed to numerical and structural chromosome abnormalities, embryogenesis and meiotic outcomes, sex chromosome abnormalities and translocations, congenital versus acquired abnormalities and mosaicism, ethical and counseling issues and reporting issues and ISCN. Students will gain diagnostic and interpretive skills in a variety of cytogenetic problems. The course requires student to complete a case report of an assigned topic with a brief literature search and review.  
*Laboratory Fee: \$30.00*

#### **DG 6401 Advanced Practice I (4 SCH)**

This is a hypothesis-based original research study. Student must fulfill the requirements of a master's level applied research work including an approved proposal by the faculty advisor and the Diagnostic Genetics core committee 1 month before the beginning of the term. Graduation with an applied research project is subject to approval by the applied research committee and program core committee, and requires the student to present their projects to a faculty committee both orally and in writing.

#### **DG 6402 Advanced Practice IIC (4 SCH)**

This is a continuation of DG6301 Advanced Practice I course. All rules and regulations for completion of the thesis project apply.

#### **DG 6501 Advanced Practice III (5 SCH)**

This is a continuation of DG6401 Advanced Practice II course. All rules and regulations for completion of the thesis project apply.  
*Laboratory Fee: \$30.00*

#### **DG 6510 Advanced Diagnostic Molecular Laboratory Techniques (5 SCH)**

This course will provide hands-on opportunities to students to develop and apply their technical skills to aid in the *diagnosis, prognosis and management* of complex human diseases and hospital-based pathogen outbreaks. Students will conduct and interpret the outcomes of molecular diagnostic tests on archived, PHI-stripped, samples from patients, control DNAs and/or otherwise healthy individuals. Students learn, 1) to handle and process human tissues and fluids and infectious pathogens isolated from human patients and extract and purify their DNA and RNA via a variety of methods in a *BSL2-safety environment*; 2) to perform QA-QC tests on cellular DNA/RNA and synthetic DNA/cDNA molecules via a variety of methods including, conventional (e.g., electrophoresis) and emergent methods like Biochips; 3) to manipulate purified DNA/RNA/cDNA molecules via well-established methods such as PCR and its variations to the recently emerged and rapidly maturing applications and technologies such as MLST and whole genome sequencing using next-generation sequencing technologies; and 4) to diagnose disease, provide disease prognosis and to genotype bacterial pathogens. Students are assigned an independent project to demonstrate their aptitude and active learning skills (theoretical and Lab-based) through execution of experimental and bioinformatics workflows involved in epidemiological surveillance of bacterial and viral genome and transcriptome sequences. This course is a part of the Project-based Integrated Core Curriculum Development Initiative (PICCDIn).

#### **DG 6521 Clinical Cytogenetics Rotation I (5 SCH)**

This laboratory rotation involves in-depth study of the different cytogenetic techniques and methods used in constitutional chromosome disorders diagnosis. This laboratory rotation also provides the students an opportunity to observe and participate in the testing algorithms and reflex testing that occur in prenatal and

postnatal cytogenetic testing environment. Student is required to perform case studies and prepare a presentation to the laboratory host rotation.

*Laboratory Fee: \$30.00*

**DG 6530 Clinical Cytogenetic Laboratory Techniques (5 SCH)**

This course will provide a comprehensive overview of all types of traditional cytogenetic techniques as well as molecular cytogenetic studies by fluorescence in situ hybridization. The course goal is to achieve entry-level competency in the workup of patients with constitutional chromosome abnormalities through both didactic and hand-on instruction. Various aspects of quality control and assurance associated with good laboratory practice for most routine cytogenetic methods will be performed and discussed. Students will maintain laboratory notebooks documenting the standard operating procedures with troubleshooting notations.

*Laboratory Fee: \$30.00*

**DG 6531 Clinical Cytogenetics Rotation II (5 SCH)**

This laboratory rotation provides the student with intensive study of test procedures and practical application of theory topics in all aspects of the hematological malignant cytogenetic study. Analytical methodologies, as well as the correlation of cytogenetic and molecular cytogenetic tests with hematologic disorders are emphasized. Quality control procedures and safety considerations are incorporated to the process of problem solving and troubleshooting. The course also competency tests students regarding to microscopic cell analysis, photographic techniques, karyotype preparation, evaluation, FISH signal quantitation and ISCN issues. Student is required to perform case studies and prepare presentations to the laboratory host rotation.

**DG 6560 Clinical Molecular Rotation I (5 SCH)**

This clinical laboratory rotation includes the study of molecular diagnostic procedures utilizing recombinant DNA technology and its application to the many aspects of the clinical laboratory. Laboratory experiences may include but not limited to DNA specimen handling and processing, DNA extraction, DNA purification, Southern blot analysis, probe preparation and utilization, PCR, primer design, Real-Time PCR, microarray, FISH and DNA sequencing.

*Laboratory Fee: \$30.00*

**DG 6570 Clinical Molecular Rotation II (5 SCH)**

This clinical laboratory rotation is a continuation of DG6560. This clinical laboratory rotation includes the study of molecular diagnostic procedures utilizing recombinant DNA technology and its application to the many aspects of the clinical laboratory. Laboratory experiences may include DNA specimen handling and processing, DNA extraction, DNA purification, Southern blot analysis, probe preparation and utilization, PCR, primer design, Real-Time PCR, microarray, FISH and DNA sequencing.

*Laboratory Fee: \$30.00*

**DG 6701 Advanced Practice II (7 SCH)**

This is a continuation of DG 6301 Advanced Practice I course. All rules and regulations for completion of the thesis project apply.

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## Diagnostic Imaging

**DI 1200 Introduction to Radiologic Sciences (2 SCH)**

This course provides a professional overview of the program, including elementary radiation protection and medical terminology. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 2161 Clinical Education I (1 SCH)**

This course provides the student with clinical experience in radiography. Students must demonstrate ARRT and program competencies.

**DI 2221 Patient Care in Radiologic Sciences (2 SCH)**

The course presents the student with information about patient care and management in radiology. CPR certification and psychosocial aspects of patient care are also introduced.

**DI 2262 Clinical Education II (2 SCH)**

This course is a continuation of DI 2361.

**DI 2263 Clinical Education III (3 SCH)**

This course is a continuation of DI 2362.

**DI 2301 Principles of Radiographic Exposure I (3 SCH)**

The student will learn darkroom procedures, theory of radiation production, image production and radiographic equipment. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 2331 Radiographic Anatomy and Positioning I (3 SCH)**

The student is introduced to radiographic anatomy, proper positioning, radiographic protocols and radiographic production in the laboratory. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 2332 Radiographic Anatomy and Positioning II (3SCH)**

This course is a continuation of DI 2331. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 2333 Radiographic Anatomy and Positioning III (3 SCH)**

This course is a continuation of DI 2332. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 2334 Radiographic Anatomy and Positioning IV (3 SCH)**

This course is a continuation of DI 2333. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 2335 Radiographic Anatomy and Positioning V (3 SCH)**

This course is a continuation of DI 2334. Students are required to complete hands-on laboratory assignments.

**DI 2342 Principles of Radiographic Exposure II (3 SCH)**

This course continues the study of radiographic imaging, instrumentation, image production and factors affecting image quality. Students are required to complete hands-on laboratory assignments.

*Laboratory Fee: \$30.00*

**DI 3200 Capstone: Registry Review (2 SCH)**

This course presents the student with a review of didactic and clinical applications in radiography.

**DI 3250 Imaging Pathology (2 SCH)**

A study of human pathology and its appearance in imaging. Course will focus on radiographic presence of pathology. Focus may vary, with instructor consent, on imaging modality of choice.

**DI 3261 Clinical Education IV (2 SCH)**

This course is a continuation of DI 2363.

**DI 3262 Clinical Education V (2 SCH)**

This course is a continuation of DI 3361.

**DI 3263 Clinical Education VI (2 SCH)**

This course is a continuation of DI 3362.

**DI 3322 Critical Care in Radiologic Sciences (3 SCH)**

This course focuses on imaging the trauma patient. Topics include critical care of patients in the imaging department, pathology and patient prognosis.

**DI 3343 Digital Imaging and Quality Management in Radiology (3 SCH)**

This course will instruct the student in the development of a quality management program in Radiology.

*Laboratory Fee: \$30.00*

**DI 3344 Forensic Radiology (3 SCH)**

This course will be a comprehensive study of the diagnostic imaging's role in forensics. It will include discussion of defining forensics, forensic radiology and the process of body decomposition. The student will be provided with an in-depth study of the identification of the dead, including anthropological, dentistry and mass casualty situations. The course will cover forensic radiology in violent crimes, nonviolent crimes (smuggling, larceny, art forgery) and abuse. There will also be discussion on safety and precautions for the imaging technologist and on being a witness in court. Also covered will be the future of forensic radiology.

**DI 3345 Directed Readings (1-3 SCH)**

Directed reading and research, followed by the writing of a report or the creation of a project. SCH are based on size, length and depth of paper or project.

**DI 3346 Professional Development (Conferences, Workshops, Lectures, Competitions) Independent Study** - Repeatable (1-3 SCH)

Attendance of educational sessions at district, state, regional or national conferences. Consent of instructor required. 12 documented contact hours per each (32 CE) credit for a maximum of 3 credits.

**DI 3347 Current Issues in Diagnostic Imaging** (3 SCH)

Current issues and trends in the health care industry and environment affecting diagnostic imaging.

**DI 3348 Seminars (Special Topics)** - Repeatable (1-3 SCH)

Special seminars relating to new developments, pathology and disease process, quality assurance and the future of imaging. Advisor Approval Required.

**DI 3349 Bone Densitometry** (3 SCH)

Comprehensive study of the methods of bone density measurement (bone densitometry, DEXA), the pathogenesis of osteoporosis, quality management issues, therapies for osteoporosis and a review of additional analysis methods.

**DI 3351 Cancer in Diagnostic Imaging** (3 SCH)

A study of cancer and diagnostic imaging's role in the diagnosis and staging of cancer of most human organ systems. This course will include a review of the pathophysiology of cancer and introduction to the imaging pathways for cancer.

**DI 3352 Professional Literature Research** (3 SCH)

This course prepares the student for professional contribution through literature review. Students will analyze and synthesize profession related journal articles and prepare a literature research paper for the purpose of publication.

**DI 4101 Radiation Safety and Protection** (1 SCH)

This course requires the student to demonstrate a detailed understanding of atomic structure, types of ionizing radiation, radiation detection devices, units of measurement, personal and public radiation safety practices and dose limitations from brachytherapy sources and external beam radiation devices. The course identifies radiation regulatory and advisory agencies and the specific requirements of each.

**DI 4300 Research Techniques in Radiologic Sciences** (3 SCH)

This course will teach the student the principles and methods of conducting practical research in health care.

**DI 4301 Research Project** (3 SCH)

This course will prepare the student to complete a research project.

**DI 4304 Sectional Anatomy** (3 SCH) (3 SCH)

This course will provide a review of the gross anatomy of the entire body. Detailed study of gross anatomical structures will be conducted systematically for location, relationship to other structures and function. Structures are located and identified in axial (transverse), sagittal, coronal and orthogonal (oblique) planes. Illustrations and anatomic images will be compared with MR, ultrasound and CT images in the same imaging planes and at the same level when applicable. The characteristic appearance of each anatomical structure as it appears on CT, MR and ultrasound, when applicable, will be stressed.

**DI 4310 Teaching Strategies in Health Care Education** (3 SCH)

This course will teach the student how to analyze learning theories with an emphasis on adult learners and the elements of quality education.

**DI 4311 Instructional Design** (3 SCH)

This course will instruct the student in the theory and application of instructional design in health care education and training.

**DI 4312 Patient Education** (3 SCH)

This course will teach the student how to plan, develop and assess patient education products and methods.

**DI 4313 Education Internship I - Education** (3 SCH)

In this course the student applies advanced technical skills as well as concepts in the area of professional elective major.

**DI 4314 Education Internship II** (3 SCH)

This course is a continuation of DI 4313.

**DI 4315 Issues in Health Care Education** (3 SCH)

This course will introduce the student to the current trends and issues related to Health Science Education.

**DI 4316 Leadership in Radiologic Sciences** (3 SCH)

This course will prepare the student for technical and professional involvement, defusing emotionally charged situations, coaching, team building, setting and reaching goals.

**DI 4317 Staff Development** (3 SCH)

Topics covered in this course include: building trust, establishing expectations, performance evaluation and reviews, giving constructive criticism and principles of motivation.

**DI 4318 Promotional Strategies in Health Care Management** (3 SCH)

This course will teach the student how to develop patient, physician and community programs to promote health care services.

**DI 4319 Fiscal Analysis in Health Care** (3 SCH)

This course will provide the student with the skills necessary for managing the financial and technical aspects of radiology and radiation oncology.

**DI 4320 Current Trends in Health Care Management** (3 SCH)

This course will prepare the student to analyze and manage trends in health care management and delivery systems.

**DI 4321 Operations Management** (3 SCH)

This course introduces the student to current practices in billing and reimbursement for health care services

**DI 4322 Effective Human Resources Management** (3 SCH)

This course will teach the student about staff recruitment, retention techniques and laws related to resource management. Topics include hiring and terminating personnel and issues of harassment and discrimination.

**DI 4323 Management Skills for the New Supervisor** (3 SCH)

This course will teach the student about transitioning from a Professional Employee to a Supervisor

**DI 4324 Management Internship I** (3 SCH)

In this course, the student applies advanced technical skills as well as concepts in the area of professional elective major.

**DI 4326 Individual Projects** (3 SCH)

This course consists of special research projects assigned to the students.

**DI 4328 Management Internship II** (3 SCH)

Course Continuation of DI 4314

**DI 4350 Introduction to Computed Tomography** (3 SCH)

This course will teach the student about digital imaging in routine and specialized 2-D and 3-D images, data management and fusion practices.

**DI 4351 CT Physics Instrumentation** (3 SCH)

Course content will deliver a basic understanding of the physical principles and instrumentation involved in CT. The historical development and evolution of CT will be reviewed. A brief introduction to computer systems will be covered which will include a review of digital image fundamentals and computers in diagnostic imaging. CT image processing will be examined and will include image formation, digitization processing techniques and hardware. CT systems and operations will be studied and will include CT x-ray tube technology; collimators and filters; gantry and detectors, characteristics and function. CT image reconstruction will be studied and will include image reconstruction from projections and reconstruction algorithms. CT image formation, processing and presentation will be included. Content will delve into image manipulation, image quality and factors affecting quality. Radiation safety and patient dose reduction techniques will be introduced.

*Prerequisites: Admission to program*

**DI 4352 CT and Interventional Procedures of the Nervous System** (3 SCH)

Content provides detailed coverage of procedure protocols for CT and Interventional Radiography (IR) imaging of the Nervous System. Protocols include, but are not limited to, indications for the procedure, patient education, preparation, orientation and positioning, patient history and assessment, contrast media usage, scout image, selectable scan parameters and archiving of the images. Protocols will be taught for differentiation of specific structures, patient symptomology and pathology. Images studied will be reviewed for

quality, anatomy and pathology. Procedure protocols vary from facility to facility and normally are dependent on the preferences of the radiologists. Content provides thorough coverage of common diseases diagnosable via CT. Each disease or trauma process is examined from its description, etiology, associated symptoms and diagnosis with appearance on CT and IR images.

*Prerequisites: Admission to program and DI 4304*

#### **DI 4353 CT and Interventional Physics II (3 SCH)**

This advanced course in CT is designed to assist the technologist in understanding the key concepts of advanced scanning techniques, provide an in-depth study of contrast agents used in CT and quality assurance. This course will include the physical principles, instrumentation, image quality considerations, patient dose considerations and clinical applications of the following advanced practices: Mobile CT, Helical CT, , Real-time Fluoroscopic CT, 3D CT, CT Angiography, Endoscopy (Virtual) CT, Cardiac CT, Positron Emission CT (PET-CT), Single Photon Emission CT -CT (SPECT-CT) and Functional CT.

*Prerequisite: DI 4351.*

#### **DI 4354 CT and Interventional Procedures of the Chest, Abdomen, Pelvis (3 SCH)**

The course content provides detailed coverage of procedure protocols for CT and Interventional Radiography (IR) imaging of the chest (to include thorax), abdomen and pelvis (male and female). Protocols include, but are not limited to, indications for the procedure, patient education, preparation, orientation and positioning, patient history and assessment, contrast media usage, scout image, selectable scan parameters, filming and archiving of the images. Protocols will be taught for differentiation of specific structures, patient symptomology and pathology. Images studied will be reviewed for quality, anatomy and pathology. Procedure protocols vary from facility to facility and normally are dependent on the preferences of the radiologists. Terms associated with these pathologies will be included.

*Prerequisite: DI 4304*

#### **DI 4355 CT Advanced Interventional CT Procedures and Instrumentation. Lab (3 SCH)**

Course content will focus on interventional imaging including surgery, biopsy and CT-guided minimally invasive treatment delivery. This includes a review of anatomy, pathology and imaging protocols for CT. Content will include in-depth study of safety, pharmacology, patient care and assessment which will include patient emergencies in relation to Interventional CT. CT image quality assurance and patient/personnel dosimetry and radiation safety as it relates specifically to Interventional CT fluoroscopy will be discussed. The future of interventional CT will be presented.

*Prerequisite: DI 4351*

#### **DI 4356 CT and Interventional Procedures of the Extremities (3 SCH)**

Content provides detailed coverage of procedure protocols for CT and Interventional Radiography (IR) imaging of the upper and lower extremities. Protocols include, but are not limited to, indications for the procedure, patient education, preparation, orientation and positioning, patient history and assessment, contrast media usage, scout image, selectable scan parameters, filming and archiving of the images. Protocols will be taught for differentiation of specific structures, patient symptomology and pathology. Images studied will be reviewed for quality, anatomy and pathology. Procedure protocols vary from facility to facility and normally are dependent on the preferences of the radiologists. Terms associated with these pathologies will be included.

*Prerequisite: DI 4304*

#### **DI 4357 CT Interventional Comprehensive Review (3 SCH)**

Course content will integrate clinical skills and classroom theories in a comprehensive study of CT and Interventional Radiography (IR) physics, instrumentation, safety, contrast agents, procedures and quality assurance.

#### **DI 4360 Introduction to MRI (3 SCH)**

This course is designed to introduce the student to the basic principles of MRI. Content will include very basic overview of MRI Safety, physics, equipment, procedures, contrast agents and the future of MRI.

#### **DI 4361 MRI Physics I: Safety, Physics, and Instrumentation and Safety (3 SCH)**

Course content introduces the student to the physics and instrumentation of MRI. The historical evolution of MRI is discussed.

Students will be presented with the concepts of MRI including components of a system, MR imaging principles and an understanding of basic MR pulse sequences and introduction to MR angiography. Imaging parameters, tissue characteristics and artifact reduction techniques will be presented. Content includes an in-depth study of MRI safety.

*Prerequisite: Admission to program*

#### **DI 4362 MRI of the Nervous System (3 SCH)**

Content is designed to provide students with a review of the anatomy of the central nervous system (brain and spine) and its MR tissue characteristics. The student will review various imaging techniques and the design of specialized receiver coils. Magnetic resonance angiography of brain vasculature will be introduced. Spectroscopy and Functional Imaging of the nervous system will be introduced. Field strength specific optimization of neuro protocols will be covered. Common pathology seen on MR images of the central nervous system will be presented.

*Prerequisite: Admission to program*

*Corequisite: DI 4363*

#### **DI 4363 MRI Physics II: Advanced MRI Procedures (3 SCH)**

Content covers evaluation of organ function and diagnosis of disease process using advanced MRI procedures with emphasis on spectroscopy, functional MR, perfusion/diffusion and parallel imaging. Course content will also include an in-depth study of MRI contrast agents and quality assurance in MR imaging, including requirements for ACR accreditation in MRI. An introduction to MRI site planning and administration will be included.

*Prerequisite: DI 4361*

#### **DI 4364 MRI of the Extremities (3 SCH)**

This course will then focus on MR imaging and angiography of the extremities that will include a review of the musculoskeletal system anatomy and an understanding of the MR tissue characteristics. Pathology of the musculoskeletal system will be discussed. Differences in anatomy between adults and children and how these differences will affect the MR tissue characteristics will be presented. Content will include a review of specialized coils and optimal scanning techniques for use with children and adults, including field strength specific extremity protocol optimization. Differences in pathology and specific pediatric pathology also will be discussed.

*Corequisite: DI 4361*

#### **DI 4365 Special Topics and Future Directions in MRI (3 SCH)**

Course content will cover current topics and future directions in MR Imaging: such as interventional MRI including surgery, biopsy and MR-guided minimally invasive treatment delivery. This includes a review of anatomy, pathology and imaging protocols for MRI. Content will include in-depth study of magnet safety, pharmacology, patient care and assessment that will include magnet-related emergencies in relation to MRI. MRI quality assurance as it relates specifically to MRI will be discussed.

*Prerequisite: DI 4361*

#### **DI 4366 MRI of the Chest, Abdomen and Pelvis (3 SCH)**

Content is designed to provide students with a review of the anatomy of the thorax, mediastinum, abdomen and the pelvis including the male and female reproductive systems with an understanding of the MR tissue characteristics. The student will review motion suppression techniques, such as respiratory and cardiac gating and the design of specialized receiver coils. The use of magnetic resonance angiography to visualize the blood vessels will be discussed, as well as field strength specific optimization of body imaging protocols. Pathology of the thorax, mediastinum, abdomen and pelvis as demonstrated through MR imaging will be presented.

*Prerequisite: DI 4363*

#### **DI 4367 MRI Comprehensive Review (3 SCH)**

Course content will integrate clinical skills and classroom theories in a comprehensive capstone of key MRI concepts in physics, instrumentation, safety, contrast agents, procedures and quality assurance.

*Prerequisites: DI 4361, 4362, 4363, 4364, 4365, 4366*

#### **DI 4390 MRI- Internship I - MRI – (3 SCH)**

In this course the student applies advanced technical skills as well as concepts in the area of MRI. Students will be introduced to the MR imaging suite, equipment and coils. Students will be familiar with MR imaging procedures with consideration to MR safety, preparation of the

exam room, scanner interface, selection of coils, patient care and preparation.

*Prerequisite: Admission to program*

**DI 4391 MRI Internship II - MRI (3 SCH)**

Course Continuation of DI 4391

*Prerequisite: Advisor approval required*

**DI 4392 MRI Internship III - MRI (3 SCH)**

*Prerequisite: Admission to program*

**DI 4393 CT Internship I - CT (3 SCH)**

Advisor Approval Required. In this course the student applies advanced technical skills as well as concepts in the area of professional elective major. Content is designed to provide an overview of CT use in the clinical setting. Understanding the equipment, protocols, patient care and patient positioning will be studied and practiced as they relate to successful CT imaging. The clinical internship will focus on image critique, sectional anatomy and pathology as seen on images. Internship course progression will be based on competencies completed with the previous internship.

*Prerequisite: Admission to program*

**DI 4394 CT Internship II - CT (3 SCH)**

Course Continuation of DI 4393

*Prerequisite: Advisor approval required.*

**DI 4395 CT Internship III - CT (3 SCH)**

Course Continuation of DI 4394

*Prerequisite: Advisor approval required*

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## Diagnostic Medical Sonography

**DS 3101 General Ultrasound (1 SCH)**

An introduction to the profession of sonography and the role of the sonographer. Emphasis on medical terminology, ethical/legal aspects, written and verbal communication and professional issues relating to registry, accreditation, professional organizations and history of the profession.

**DS 3103 Introduction to Vascular Technology (1 SCH)**

Introduction to basic non-invasive vascular theories. Emphasizes image orientation, transducer handling and identification of anatomic structures.

**DS 3211 Clinical Internship I (2 SCH)**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional.

**DS 3221 Sonography Physics I (2 SCH)**

Basic acoustical physics and acoustical waves in human tissue. Emphasis on ultrasound transmission in soft tissues, attenuation of sound energy, parameters affecting sound transmission and resolution of sound beams.

**DS 3222 Sonographic Sonography Physics II (2 SCH)**

Continuation of Sonographic Physics I. Includes interaction of ultrasound with tissues, mechanics of ultrasound production and display, various transducer designs and construction, quality assurance, bioeffects and image artifacts. May introduce methods of Doppler flow analysis.

**DS 3262 Gynecological Pathology (2 SCH)**

Detailed study of normal and pathological gynecology as related to scanning techniques, patient history and laboratory data, transducer selection and scanning protocols.

**DS 3264 Sonography of Superficial Structures (2 SCH)**

Detailed study of normal and pathological superficial structures as related to scanning techniques, patient history and laboratory data, transducer selection and scanning protocols.

**DS 3312 Clinical Internship II (3 SCH)**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional.

**DS 3341 Abdominal AB Ultrasound (3 SCH)**

Normal anatomy and physiology of the abdominal and pelvic cavities as related to scanning techniques, transducer selection and scanning protocols 3 credits

**DS 3343 Obstetrics Sonography (3 SCH)**

Detailed study of obstetrics as related to scanning techniques, patient history and laboratory data, transducer selection and scanning protocols.

**DS 3361 Abdominal and Pelvic Pathology (3 SCH)**

Pathologies and disease states of the abdomen and pelvis as related to scanning techniques, patient history and laboratory data, transducer selection and scanning protocols. Emphasizes endocavitary sonographic anatomy and procedures including pregnancy.

**DS 3363 Neurosonography (3 SCH)**

Detailed study of the normal and pathological neonatal head structures.

**DS 3371 Sonography Lab I (3 SCH)**

Practical application in the lab identifying the sonographic appearances of normal abdominal and pelvic structures small parts or superficial structures; apply the appropriate scanning techniques, transducer selection and scanning protocols.

**DS 3372 Sonography Lab II (3 SCH)**

Practical application in the lab identifying the sonographic appearances of normal abdominal and pelvic structures small parts or superficial structures; apply the appropriate scanning techniques, transducer selection and scanning protocols.

**DS 3373 Sonography Lab III (3 SCH)**

Practical application in the lab identifying the sonographic appearances of normal abdominal and pelvic structures small parts or superficial structures; apply the appropriate scanning techniques, transducer selection and scanning protocols.

**DS 4100 Registry Review (1 SCH)**

Prepare the student for the registry through mock registry

**DS 4142 Special Topics in Diagnostic Medical Sonography (1 SCH)**

Topics address recently identified current events, skills, knowledge and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency.

**DS 4346 4246 Sonography of Small Parts (3 SCH)**

Detailed study of normal and pathology of the breast and muscular skeletal system as related to scanning techniques, patient history and laboratory data, transducer selection and scanning protocols.

**DS 4265 Pediatric Sonography (2 SCH)**

Normal and pathological pediatric sonography.

**DS 4302 Principles of Vascular Technology (3 SCH)**

Introduction to non-invasive vascular technology modalities. Includes 2D imaging, Doppler, plethysmography and segmental pressures. Emphasis on performing basic venous and arterial imaging and non-imaging exams.

**DS 4303 Advanced Non- Invasive Vascular Technology (3 SCH)**

Non-invasive vascular concepts. Includes harmonics, contrast, power Doppler, digital intraoperative, intravascular, abdominal vascular, graft surveillance, vascular interventions and research. Emphasizes extensive review of case studies, technical reporting, preliminary interpretation and registry review.

**DS 4311 Clinical Internship III (3 SCH)**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional.

**DS 4312 Clinical Internship IV (with Capstone) (3 SCH)**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional

**DS 4345 Sonography of High Risk Obstetrics (3 SCH)**

Maternal disease and fetal abnormalities. Includes scanning techniques, patient history and laboratory data, transducer selection and scanning protocols.

**DS 4351 Doppler Physics Sonography (3 SCH)**

Doppler and hemodynamic principles relating to arterial and venous imaging and testing.

**DS 4374 Sonography Lab IV (3 SCH)**

Practical application in the lab identifying the sonographic appearances of normal abdominal and pelvic structures small parts or superficial structures; apply the appropriate scanning techniques, transducer selection and scanning protocols.

**DS 4375 Sonography Lab V (3 SCH)**

Practical application in the lab identifying the sonographic appearances of normal abdominal and pelvic structures small parts or superficial structures; apply the appropriate scanning techniques, transducer selection and scanning protocols.

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## Genetic Technology

**GT 4300 Advanced Medical Genetics (3 SCH)**

A study of the role of genetics in medicine. This course will allow the students to understand the basic genetic principles and their applications in clinical genetics. This course focuses on applying genetic principle in real clinical situations.

**GT 4330 Genetics of Hematology Malignancies (3 SCH)**

This course is a comprehensive study of the principles and procedures used in the cytogenetic analysis of peripheral blood and bone marrow in the study of malignant processes, especially hematological ones. The course emphasizes the chromosome abnormalities and the affected gene/s occurring in leukemias and lymphomas and their clinical significance.

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## Health Science

**HS 3101 Basic Techniques Laboratory (1 SCH)**

An introduction to basic clinical laboratory skills common to all diagnostic programs. Emphasis on proper use of pipettors and micropipettors, sterile techniques, laboratory safety, chemical storage and proper waste disposal, calibration and use of balances, centrifuges and spectrophotometers, serial dilutions, making buffers from stocks, microscopy and slide making.

**HS 3102 Advanced Molecular Techniques Laboratory Techniques (1 SCH)**

This course serves a dual purpose in solidifying the basic laboratory fundamentals before introducing the student to the basic techniques of the molecular lab. First, the student is provided with a practical foundation in proper laboratory safety practices, pipetting, micropipetting, serial dilution and solution preparation before introducing the student to the basic molecular techniques of genomic DNA extraction, quantitation and gel electrophoresis. Also included in this course are various applications related to other laboratory science disciplines such as basic microscopy, slide preparation, hematological cell identification, as well as an introduction to karyotyping and commercial FISH. Effectively, the student sees a more comprehensive introduction to the basic lab with an emphasis on those bench skills foundational to performing the most basic techniques of the molecular lab.

**HS 3110 Medical Terminology (1 SCH)**

This course is an introduction to medical terminology. Emphasis is on word roots, prefixes, suffixes, spelling and analysis of unfamiliar terms. Additional background information on the anatomy that relates to various body systems will be discussed. Included is a review of the principles of mathematics and statistics used in clinical laboratories. Course presentation includes introduction to the operation of a laboratory information system. Course delivery is on-line, interactive, self-paced.

**HS 3120 Introduction to Cytogenetics (1 SCH)**

A detailed study of human G-banded chromosomes. Includes instruction in banding pattern recognition, polymorphic variation, determination of band level and a brief touch on the International System for Human Cytogenetic Nomenclature (ISCN). Includes classroom instruction, hands-on experience and online practice.

**HS 3203 Basic Advanced Molecular Techniques Laboratory II (2 SCH)**

A continuation of the HS3101 Basic Techniques Laboratory I course where basic techniques introduced in the previous course are reinforced and built upon through an objective based approach schema in which students presented with a scenario simulating either the clinical or research molecular lab are required to process samples

from receipt to report. At the bench, students learn the effective organizational and technical skills for processing multiple samples for gDNA extraction from a variety of specimen types, DNA quantitation, PCR amplification, gel electrophoresis and proper visualization and documentation of results. There is a greater focus on carrying out experimental objectives in accordance with proper quality assurance and quality control guidelines while placing a stronger emphasis on delivering timely, accurate and reproducible results. Proper documentation habits are adhered throughout the experimental process from sample receipt to final analysis and reporting of experimental results. PCR troubleshooting basics, restriction digestion and restriction mapping, as well as an introduction to molecular cloning. Effectively, the student solidifies a very strong foundation in all the basic techniques of the molecular lab with an introduction to those further applications that will be reinforced and built upon in the Senior Year.

**HS 3210 Laboratory Mathematics (2 SCH)**

The basic principles and theory of clinical, biochemical and analytical laboratory math related calculations. It includes basic operations such as problem solving using percentiles, rates, ratios, mole ratios, molality, pH, conversions, solving for proportions and more.

**HS 3254 Immunohistochemistry (2 SCH)**

A comprehensive course that deals with the fundamentals of immunohistochemistry as applied to the theory and practical techniques in histopathology. The students acquire basic knowledge of how immunology is applied in the development of immunohistochemistry reagents and techniques. The course provides hands-on experience in performing immunohistochemistry staining procedures using different detection systems to localize and visualize reactions in histological and cytologic preparations. Emphasis will be placed on the clinical significance of diagnostic and prognostic indicators used in immunohistochemistry techniques. Troubleshooting and standardization of reagents are emphasized in this course.

**HS 3270 Critical Thinking in Health Professions (2 SCH)**

This course is designed to provide health professions students with resources for improving critical thinking skills. The course will introduce basic concepts of critical thinking through integration into interactive case studies, problem based scenarios and project design assignments. The specific objectives of this course coincide with the School of Health Professions' definition of critical thinking.

**HS 3300 Medical Immunology (3 SCH)**

This course focuses on the basic concepts in immunology and covers general properties of immune responses; cells and tissues of immune system; lymphocyte activation and specificity; effector mechanisms; immunity to microbes; immunodeficiency and AIDS; autoimmune diseases; transplantation. Course delivery is a blend of lecture and on line, self-paced activities.

**HS 3310 Introduction to Quality in Healthcare (3 SCH)**

This course will provide an overview of the history, development and application of quality concepts. The components of quality management, quality assurance and quality control will be addressed through discussions and assignments on the history of quality, the different approaches to quality, such as Six Sigma and ISO standards and how to define, implement and ensure compliance to the quality assurance and quality control process.

**HS 3320 Medical Genetics (3 SCH)**

This course is a study of the role of genetics in medicine including: Mendelian genetics, multifactorial inheritance, DNA structure, chromosome structure, population genetics, mutation rates, ethnicity of disease and genetic mapping. A comprehensive review of the cell cycle, mitosis and meiosis and pedigree analysis is incorporated as well.

*Prerequisite: Admission to Program*

**HS 3330 Pathology of Body Fluids (3 SCH)**

This course is a study of the anatomy and physiology of the kidney and the formation, elimination and composition of urine. Various body fluids (CSF, Synovial, Plural, Serous, etc.) will be study and associations made with various disease states. Interpretation of urinary and body fluids elements, chemical assays and the correlation with normal and abnormal physiology: Course delivery is a blend of lecture and on line, self-paced activities.

*Prerequisite: Admission to Program*

**HS 3333 Statistics (3 SCH)**

This course provides an introduction to statistical techniques. Emphasis will be placed on probability and probability distributions, sampling and descriptive measures, inference and hypothesis testing, linear regression and analysis of variance.

*Prerequisite: HS 3101*

**HS 3340 Research Methods**

This research methods course will introduce the basic language and concepts of empirical research with emphasis on the applicability of research methodology in health care. Students will have the opportunity to learn how to search the peer-reviewed journal databases available to them through the Research Library. They will then critique and review their references, learn how to make an outline and write a literature review on their assigned topic. Curriculum will include a blend of lectures, group work, presentations by guest researchers and development of a group research poster.

**HS 3370 Fundamentals of Writing and Critical Thinking (3 SCH)**

This basic writing course stresses both reading and writing skills and is designed to teach students to improve their ability to write logically and develop short essays, brief formal summaries and reports.

**HS 4100 Issues in Health Care Ethics (1 SCH)**

This course content is designed to establish a foundation and set parameters of professional practice for health care professionals. The emphasis will be on developing the background for the resolution of ethical dilemmas through ethical reasoning, ethical obligations in health professional-patient relationships and just allocation of scarce health care resources.

**HS 4101 Diversity and Cultural Competence (1 SCH)**

This course is designed to provide each student with a fundamental understanding of the concepts of cultural competency, diversity and inclusion. The course content of each module emphasizes the following seven culturally competent areas of diversity: Building Relationships across Culture; Communication Across Differences; Conflict resolution Across Cultures ; Microinequities within the Workplace.; Diversity and Inclusion; Abilities: A Journey from Exclusion to Inclusion; Spirituality and health care practices.

**HS 4110 Molecular Genetics Technology (1 SCH)**

The study of clinical laboratory molecular diagnostic procedures utilizing recombinant DNA technology and its application to the many aspects of the clinical laboratory.

*Prerequisites: GT 4230, CC 4531*

**HS 4111 Medical Law**

This course introduces the student to medical law and case studies in health care practice.

**HS 4111L Medical Microbiology Student Laboratory (1 SCH)**

The course utilizes biochemical, morphological and serological techniques to illustrate concepts from the lecture course relating to microbial structure, metabolism, virulence and transmission. Students also receive instruction on proper technique and procedures for a number of different tests, including culturing, staining, carbohydrate utilization, immunoassays and microscopy.

**HS 4160 Critical Scientific Analysis (1 SCH)**

Students will analyze current scientific publications for research questions, hypothesis, study design and statistical analysis and the application of proper scientific formats in the clinical laboratory professions. Students will complete pre-session assignments, participate in group discussion and present their group findings.

**HS 4161 Seminar in Health Care (1 SCH)**

Seminar-based course covering topics in the clinical laboratory sciences.

**HS 4170 Special Topics I (1 SCH)**

A review of the principles of mathematics and statistics used in the clinical laboratories, this course presentation includes an introduction to the selection and operation of a laboratory information system.

**HS 4300 Pathophysiology for Health Professions (3 SCH)**

This course is designed to provide basic knowledge in pathophysiology in preparation for professional studies in the health sciences. Topics covered include central concepts of pathophysiology of the cells and tissues and alterations in organs and systems with an emphasis on carcinogenesis. Appropriate diagnostic and treatment procedures are covered.

**HS 4303 Advance Pathophysiology (3 SCH)**

This course provides the knowledge in pathophysiology by organ and systems. A focus on diseases and treatment of the radiation therapy patient are emphasized.

**HS 4310 Medical Microbiology (3 SCH)**

This course is the study of the utilization of morphological, biochemical, serological, disease inducing characteristics for microorganism, fungi, mycobacterium and virus identification. Course delivery a blend of lecture and on-line, self-paced activities.

**HS 4371 Management and Education (3 SCH)**

This course covers laboratory management and educational methodologies. It includes management and motivational theories, communication skills, regulatory and accreditation requirements, budget and strategic planning, curriculum design and examination instruction. Course delivery is on-line, interactive, self-paced.

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## Histotechnology

**HTL 3254 Immunohistochemistry (2 SCH)**

A comprehensive course that deals with the fundamentals of immunohistochemistry as applied to the theory and practical techniques in histopathology. The students acquire basic knowledge of how immunology is applied in the development of immunohistochemistry reagents and techniques. The course provides hands-on experience in performing immunohistochemistry staining procedures using different detection systems to localize and visualize reactions in histological and cytologic preparations. Emphasis will be placed on the clinical significance of diagnostic and prognostic indicators used in immunohistochemistry techniques. Troubleshooting and standardization of reagents are emphasized in this course.

**HTL 4241 Histotechnology Laboratory Operations I (2 SCH)**

In this course, students will study the applications of laboratory operations. This course will review the metric system as utilized and applied to histotechnology. General staining considerations, cytotechnology specimen preparation, decalcification, solution preparations and safety in the laboratory will be emphasized.

**HTL 4242 Histotechnology Laboratory Operations II (2 SCH)**

This course is a continuation of HT 4241 with emphasis on the laboratory operations as applied to special staining techniques in the microscopic identification of carbohydrates, lipids, nucleic acids, enzymes, amyloid, pigments and minerals and cytotechnology staining. Students will prepare reagents to use in performing these special staining techniques. Laboratory management principles will also be discussed.

**HTL 4312 Theory and Practice of Histotechniques I (3 SCH)**

This course consists of the principles of routine histologic techniques and the basic principles, components and use of instruments in the histopathology laboratory. The students will acquire basic knowledge in the theory of fixation and processing/embedding for routine tissue processing staining. Students will also acquire basic knowledge in the theory and practical application of microtomy, cryosectioning and routine staining. Students will learn to use various chemicals and equipment. Preventive maintenance, troubleshooting and comparison of types of equipment are also discussed. Principles and establishment of quality control methods and maintenance of records are presented. Current federal regulations dealing with accreditation of laboratories and safety procedures are also discussed.

**HTL 4399 Special Topics in Histotechnology (3 SCH)**

This course consists of a comprehensive review of entry-level, intermediate and advanced practices in histotechnology. Emphasis will be placed on a program capstone review to prepare students take the ASCP HTL BOC examination.

**HTL 4413 Theory and Practice of Histotechniques II (4 SCH)**

The course is a continuation of HT 4312 and consists of the principles of routine histologic techniques and the basic principles, components and use of instruments in the histopathology laboratory. The students will acquire intermediate to advanced knowledge in the theory of fixation and processing/embedding for routine tissue processing. Students will also acquire intermediate to advanced knowledge in the theory and practical application of microtomy, cryosectioning and routine staining. Students will learn to use various chemicals and equipment. Preventive maintenance, troubleshooting and comparison of types of equipment are also discussed. Principles and establishment

of quality control methods and maintenance of records are presented. Current federal regulations dealing with accreditation of laboratories and safety procedures are also discussed.

#### **HTL 4444 Theory of Special Stains (4 SCH)**

This course studies the theory underlying the principles and techniques of special staining as applied to microscopic identification of connective tissue, muscle, neurological tissues, carbohydrates, lipids, proteins, blood elements, pigments and minerals. The clinical significance of these stains in diagnoses will be discussed.

#### **HTL 4521 Histotechniques Clinical Laboratory Rotation I (5 SCH)**

This course consists of supervised beginning-level clinical practice in the histopathology student laboratories. Students will rotate through selected areas of the histopathology laboratory to include tissue processing, embedding, microtomy, routine and special staining.

#### **HTL 4522 Histotechniques Laboratory Rotation II (5 SCH)**

This course involves supervised intermediate-level internship at MD Anderson or affiliate site in selected areas of histopathology to include frozen sectioning, tissue processing and embedding, decalcification, transmission electron microscopy, microtomy and routine and special staining.

#### **HTL 4523 Histotechniques Clinical Laboratory Rotation III (5 SCH)**

This course involves supervised advanced-level internship MD Anderson or affiliate site in specialized areas of histopathology including frozen sectioning, special staining, in situ hybridization, microtissue arrays and cytotechnology.

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## **Medical Dosimetry**

#### **MD 3201 Introduction to Radiation Treatment (2 SCH)**

This course will introduce students to different aspects of radiation treatment including machine parameters, treatment administration and patient care issues.

#### **MD 3302 Introduction to Treatment Planning I (3 SCH)**

This is a lab based course which provides students with the hands on experiences. In this course, junior students will be taught about the treatment planning system and learn the procedures needed to develop radiation treatment plan for different disease sites.

#### **MD 3303 Introduction to Treatment Planning II (3 SCH)**

This course is a continuation of MD 3302. In this course students learn the procedures to develop more complex treatment planning for different disease sites.

*Prerequisite: MD 3302*

#### **MD 3304 Introduction to Clinical Medical Dosimetry (3 SCH)**

In this course students learn about different aspects of the medical dosimetry profession including treatment planning, image fusion, verification calculation and plan presentation.

*Prerequisite: MD 3303*

#### **MD 4102 Anatomy for Radiation Oncology (1 SCH)**

This course presents each student with an anatomical study of the human body in topographical, sagittal, transverse and coronal planes. Treatment planning techniques for the body sections are discussed.

#### **MD 4104 Aspects of Radiation Oncology (1 SCH)**

This course presents the student with psychosocial aspects of oncologic patient care. Topics include thanatology and bereavement, body image and emotions in illness and treatment. Additionally, students are presented with aspects of dosimetry practice other than treatment planning which include: electronic charting, treatment error corrections and other professional opportunities.

#### **MD 4201 Medical Dosimetry Review (2 SCH)**

In this course students attend a 3-day seminar which review the material needed for preparation to medical dosimetry certification exam. Topics include math review, radiation physics, radiobiology, external beam parameters, external beam properties, electron and proton characteristics, quality assurance, brachytherapy, treatment machines, machine calibration, radiation safety and treatment planning.

#### **MD 4210 Radiation Biology (2 SCH)**

This course presents the students with cellular, subcellular and tissue biology. The course requires the students to discriminate between types of cellular damage caused by ionizing radiation. Additionally,

students are exposed to proliferation kinetics, fractionated radiotherapy, acute and chronic effects of radiation on human cells and body systems, principles of linear energy transfer and relative biologic effectiveness and the impact of radiosensitizers and radioprotectors on patient treatment.

#### **MD 4300 Introduction to Medical Dosimetry (3 SCH)**

This course is an introduction to medical dosimetry which includes introduction to terms used in radiation oncology, math review, characteristics of radiation used for treatment, SSD and SAD techniques of dose calculation, verification calculation and treatment planning software training. Students are assigned to work individually on a case study and present their findings to their peers in the classroom setting.

#### **MD 4301 Medical Dosimetry Physics I (3 SCH)**

This course teaches basic theories and calculations for radiation oncology including the structure of matter, nuclear transformation, x-ray production and quality, radiation generators, interaction and measurement of ionizing radiation and absorbed dose measurement.

#### **MD 4302 Brachytherapy Dosimetry (3 SCH)**

This course teaches the physics of brachytherapy including source characteristics, dosimetry systems and dose calculations.

#### **MD 4303 Research in Radiologic Sciences I (3 SCH)**

This course is an introduction to basic research concepts. Development of a research project begins. Students conduct literature review and construct their introduction and literature review sections of their final paper.

#### **MD 4305 Medical Dosimetry Physics II (3 SCH)**

This course is a continuation of MD 4301 that teaches basic theories and calculations for radiation oncology and includes classical and modern radiation therapy.

*Prerequisite Course: MD 4301*

#### **MD 4306 Research in Radiologic Sciences II (3 SCH)**

This course is a continuation of MD 4303, with projects finalized. Students complete data collection and analysis and construct their final manuscript.

*Prerequisite Course: MD 4303*

#### **MD 4309 Interstitial and Intracavitary Dosimetry (3 SCH)**

This course focuses on interstitial and intracavitary brachytherapy such as GYN malignancies, prostate seed implant, eye plaque, accelerated partial breast irradiation and manual and after loading interstitial implants. Patient care in brachytherapy and sterile procedures will also be discussed.

*Prerequisite: MD 4302.*

#### **MD 4313 Clinical Radiation Oncology (3 SCH)**

This course presents an in-depth study of multidisciplinary treatment of the cancer patient from the clinician's viewpoint. Students are required to master concepts specific to site-specific disease including histopathology, etiologic and epidemiology factors, detection and diagnosis, tumor stage and grade, routes of metastases, dose fractionation and prognostic factors. This course is designed to approach each cancer type by anatomic system, addressing treatment factors with increasing degrees of complexity.

#### **MD 4401 Radiation Physics (4 SCH)**

In this course, students will learn about applications of radiation in medicine. Radiation measurement, different types of radiation detectors, late effects of radiation, dose to non-target structures, impact of treatment modifiers, fetal dose consideration, electronic risk following pace maker irradiation and different imaging modalities will be discussed.

#### **MD 4504 Clinical Education I (5 SCH)**

In this course students are supervised in a clinical practice setting and learn different aspects of advanced medical dosimetry. Students are involved in hands-on activities in the clinical practice setting.

*Prerequisite: MD 3304*

#### **MD 4508 External Beam Dosimetry (5 SCH)**

This is a continuation of MD 4301 and MD 4305 that teaches basic theories and calculations for radiation oncology.

*Prerequisites: MD 4301, 4305*

#### **MD 4510 Clinical Education III (5 SCH)**

In this course students are supervised in a clinical practice setting and

learn different aspects of advanced medical dosimetry. Students are involved in hands-on activities in the clinical practice setting.

*Prerequisite: MD 4617*

#### **MD 4617 Clinical Education II (6 SCH)**

In this course students are supervised in a clinical practice setting and learn different aspects of advanced medical dosimetry. Students are involved in hands-on activities in the clinical practice setting.

*Prerequisite: MD 4504*

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## **Molecular Genetic Technology**

#### **MG 4111 Bioinformatics for Clinical Diagnostics I Laboratory (1 SCH)**

This is the lab course to MG 4200 Bioinformatics for Clinical Diagnostics I course. Students will learn how to access, manage, and analyze biological information using computer applications for purposes such as obtaining biological sequences and performing clinical research and development, assay design, and data analysis.

#### **MG 4160 Genetic Technology Journal Club (1 SCH)**

Seminar-based course that covers topics in genetics and related fields.

#### **MG 4200 Bioinformatics for Clinical Diagnostics I (2 SCH)**

This course will introduce the students to the clinical applications of information technology and computer-based science. Students will learn how to access, manage and analyze biological information using computer applications for purposes such as obtaining biological sequences and performing clinical research and development, assay design and data analysis.

#### **MG 4211 Molecular Diagnostic Techniques (2 SCH)**

This course will provide participants with a didactic understanding of laboratory process and procedures. The topics covered may include information related to sample storage and transport requirements for integrity, purpose of reagents and parameters used in molecular applications and theoretical understanding of platform methodologies, data analysis and trouble shooting.

#### **MG 4280 Concepts in Molecular Diagnostics (2 SCH)**

This course focus on the role of genetics in medicine and related molecular testing methodologies. The course aims to highlight the importance of genetics and its role in disease by providing a link between disease diagnosis, prognosis, prevention and treatment with molecular testing options and applications through case-based analysis. Topics may include diseases or disorders in the areas of oncology, inherited and infectious disease, oncology and applications including pharmacogenomics and next generation sequencing.

#### **MG 4281 Advanced Concepts in Molecular Diagnostics (2 SCH)**

This course is a continuation of MG4280 Concepts in Molecular Diagnostics course focusing on the role of genetics in medicine and related molecular testing methodologies. The course aims to examine in greater detail the role of clinical molecular testing in refining diagnosis, prognosis and treatment decisions. Students will apply a case-based analysis approach and oral presentations to investigate technologies involving amplification and sequencing.

#### **MG 4290 Clinical Disease Applications of Molecular Genetics (2 SCH)**

Focuses on the specific applications of molecular techniques within a variety of medical disciplines. The disciplines covered may include but not limited to molecular oncology, molecular pre/post-natal testing and molecular infectious disease testing.

#### **MG 4310 Molecular Diagnostic Techniques Laboratory II (3 SCH)**

This lecture/laboratory course will introduce the student to human identity testing. The course provides an application of skills such as extraction, amplification, quantitation, capillary electrophoresis, fragment analysis and population genetics for forensic DNA analysis and / or paternity testing.

#### **MG 4320 Molecular Diagnostic Techniques Laboratory III (3 SCH)**

This course will provide participants with a didactic understanding of advanced laboratory processes and procedures. The topics covered include a practical and theoretical understanding of platform methodologies including real-time PCR expression analysis, microsatellite instability, methylation-specific PCR, Sanger sequencing and Next Generation sequencing. Data analysis, statistical evaluation and troubleshooting are also covered.

#### **MG 4510 Molecular Diagnostic Techniques Laboratory I (5 SCH)**

The course will provide participants with hands on laboratory experience in: performing molecular techniques such as DNA extraction, purification and quantification; preparing and viewing gel electrophoresis; conducting PCR and Real-Time PCR experiments; and designing primers and performing Sanger sequencing with assay optimization and troubleshooting.

#### **MG 4560 Molecular Diagnostic Clinical Rotation I (5 SCH)**

This clinical laboratory rotation includes the study of molecular diagnostic procedures utilizing recombinant DNA technology and its application to the many aspects of the clinical laboratory. Laboratory experiences include DNA specimen handling and processing, DNA extraction, DNA purification, Southern blot analysis, probe preparation and utilization, PCR, primer design and Real-Time PCR.

#### **MG 4570 Molecular Diagnostic Clinical Rotation II (5 SCH)**

This clinical laboratory rotation is a continuation of MG 4560. This clinical laboratory rotation may include the study of molecular diagnostic procedures utilizing recombinant DNA technology and its application to the many aspects of the clinical laboratory. Laboratory experiences may include DNA specimen handling and processing, DNA extractions, DNA purification, Southern blot analysis, probe preparation and utilization, PCR, primer design and Real-Time PCR.

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## **Radiological Sciences**

#### **RS 5310 Fundamentals of Healthcare Systems (3 SCH)**

The purpose of this course is to provide students with an overview of the U.S. health care structure and components of health services delivery. The course reviews the evolution, structure and current issues in the health care system and examines the unique features of health care as a product including the changing relationships between patients, healthcare professionals, public and private third-party payers, regulators, reimbursement methods and technology. It also reviews legislative reforms, budget debates in the U.S Congress and the financing of health care programs including the Affordable Care Act, Medicare and Medicaid.

#### **RS 5311 Strategic Management and Business Policy (3 SCH)**

The purpose of this course is to explore and selectively apply modern concepts of strategic management skills and techniques to simulate various strategic situations. Students explore the role of strategic planning in achieving organizational performance and key concepts in strategic planning, including identifying the relationship of the plan to the organization's mission, values and vision; assessing the competition; identifying external influences and resources; forecasting trends in organization performance and setting goals. Students apply course concepts, including strengths, weaknesses, opportunities and threats (SWOT) analysis, as they research and develop components of strategic plan for a specific healthcare organization. The course also examines how policies in each functional area are integrated into an overall competitive strategy.

#### **RS 5312 Research Methodology (3 SCH)**

This course provides an opportunity for students to establish or advance their understanding of research through critical exploration of social or clinical issues. Students will develop statistical vocabulary and the elements of the research process within quantitative and qualitative approaches. They will use these theoretical underpinnings to critically review literature relevant to their field of interests.

#### **RS 5313 Legal and Ethical Fundamentals of Healthcare (3 SCH)**

This class is designed to provide a general introduction to the legal and ethical environment of health services administration. It examines principles and practical applications of the laws that affect the operational decisions of health care providers, payors and administrators. The course focuses on required knowledge of laws and regulations developed by policymakers that impact healthcare organizations. Also examined, are key laws that govern patient care delivery, employee relations, contracts and fraud. Emphasis is placed on legal and regulatory guidelines that administrators must follow as they design and implement policies and practices within the healthcare organizations.

#### **RS 6311 Healthcare Financial Management (3 SCH)**

This course is an introduction to healthcare finance and description of the current financial environment in which healthcare organizations function. It explores the basics of financial and managerial accounting

and presents concepts that are critical to making thorough financial decisions to improve the cost effectiveness of the organization. Students interpret and analyze the financial statements of a business, use and analyze financial ratios, utilize variance analysis, understand and implement operating and capital budgeting and develop knowledge of the business planning process.

**RS 6312 Human Resource Management in Health Professions (3 SCH)**

The purpose of this course to provide a foundation of knowledge and skills applicable to the current issues and challenges in healthcare human resource management. It focuses on developing human resources management and leadership strategies that can be utilized to solve various management and operational issues. These include recruitment and selection of employees, benefits and compensation management, privileging and credentialing of health professionals, performance evaluations, staffing plans, labor relations and labor laws relevant to healthcare organizations. Students examine the theory and practice of managing individuals and groups through motivation, communication, teamwork, collaboration, leadership, organizational change, negotiation, conflict management and resolution.

**RS 6313 Adult Learning and Instruction (3 SCH)**

This course will discuss the recent research concerning the concept of adult learning and how this can be applied in design and implementation of effective adult instruction. The learning theories, principles and practices of adult learning and how they can be incorporated into adult instruction will also be discussed.

**RS 6314 Critical Thinking Strategies in Higher Education (3 SCH)**

This course will provide a foundation of knowledge on theories of critical thinking and how they can be applied in higher education curriculum. Students will learn a variety of critical thinking strategies to incorporate into their lesson plans in order to create an active learning environment for their adult learners.

**RS 6315 Curriculum Development and Evaluation (3 SCH)**

This course provides the essential processes of curriculum development in higher education and the evaluation process for its continuous improvement. The course will also discuss the challenges of administering curriculum and the roles of leadership and administration.

**RS 6316 Health Resources and Policy Analysis (3 SCH)**

This course examines factors that affect performance outcomes within healthcare organizations; methods to monitor, adjust and improve performance; techniques and tools of quantitative analysis of operations and decision making. Additional emphasis is also placed on staffing, scheduling, productivity and supply chain and reengineering of work processes using flowcharts. Students explore performance data to identify trends and variation based on current operations and those resulting from changes and improvements.

**RS 6317 Thesis (3 SCH)**

This course provides an opportunity for the students to research a topic related to their area of specialization and present and defend it before their faculty members. As a result of this course, students will enhance their understanding of the topic based on the latest research studies and their own experiences.

**RS 6318 Healthcare Informatics and Technology Management (3 SCH)**

This course examines the realm of Health Care Information Systems (HCIS) and provides the student with the opportunity to develop an understanding of basic information technology, clinical and administrative applications of health care information systems. Emphasis is placed on how these platforms make available information that facilitate patient care, improved management of medical records, enhancement of supply inventory management and improve vendor contracting and management. Students also explore Web-based systems for increasing consumer knowledge, confidentiality of information systems, organizational compliance and data sets. Additional topics relating to patient confidentiality are also discussed including HIPPA and electronic health records.

**RS 6319 Internship (3 SCH)**

This course consists of a minimum of two weeks of supervised internship in an area of health care administration or educational leadership. Students will receive academic credit for supervised professional training and experience in an actual work environment. The practicum is an ongoing seminar between the student, faculty and

employment supervisor, and requires submission of progress material as established in the Internship Application and Learning Agreement.

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## Radiation Therapy

**RT 3101 Simulation and Treatment Techniques I (1 SCH)**

This course is taught in the clinical and virtual settings. Students are required to demonstrate accurate simulation and/or treatment set-up procedures and patient immobilization for basic to immediate radiation therapy treatment protocols.

**RT 3103 Simulation and Treatment Techniques II (1 SCH)**

Continuation of RT 3101. This course is taught in the clinical and virtual settings. Students are required to demonstrate accurate simulation and/or treatment set-up procedures for intermediate to advanced radiation therapy treatment protocols.

**RT 3220 Clinical Education I (2 SCH)**

This course provides supervised clinical education in which students are assigned to a specific patient. The student will observe the patients from consultation through treatment. Students are required to present in a formal setting the educational findings related to their patient's treatment regime. Students must demonstrate competency in block fabrication, patient immobilization, patient transfer techniques, bolus, vital signs and basic patient care. Students are assigned a mentor for the development of a master- apprentice relationship.

**RT 3221 Clinical Education II (2 SCH)**

Continuation of RT 3220.

*Prerequisite: RT 3220*

**RT 3222 Clinical Education III (2 SCH)**

Continuation of RT 3221.

*Prerequisite: RT 3221*

**RT 3345 Directed Readings (1-3 SCH)**

Directed reading and research, followed by the writing of a report or the creation of a project. SCH are based on size, length and depth of paper or project.

**RT 4101 Radiation Safety and Protection (1 SCH)**

This course requires the student to demonstrate a detailed understanding of atomic structure, types of ionizing radiation, radiation detection devices, units of measurement, personal and public radiation safety practices and doses of external beam radiation devices. The course identifies radiation regulatory and advisory agencies and the specific requirements of each.

**RT 4156 Individual Projects (1 SCH)**

This course is designed to provide a review of knowledge in clinical oncology in preparation for the registry examination. Topics cover the concepts of various cancers, staging and treatment techniques. Appropriate diagnostic and treatment procedures are also covered. Students are required to design, develop and present specific individualized projects.

**RT 4199 Special Projects in Radiation Therapy (1 SCH)**

This course is designed for individual projects, research, special seminars, or further investigation of topics in radiation oncology.

**RT 4210 Radiobiology (2 SCH)**

This course presents the students with cellular, subcellular and tissue biology. The course requires the students to discriminate between types of cellular damage caused by ionizing radiation. Additionally, students are exposed to proliferation kinetics, fractionated radiotherapy, acute and chronic effects of radiation on human cells and body systems, principles of linear energy transfer and relative biologic effectiveness and the impact of radiosensitizers and radioprotectors on patient treatment.

**RT 4295 Capstone (2 SCH)**

This course is capstone preparation for national certification and licensure.

**RT 4302 Anatomy for Radiation Oncology (3 SCH)**

This course addresses the anatomical study of the human body in topographical, sagittal, transverse and coronal planes.

**RT 4305 Patient Care in Radiation Oncology (3 SCH)**

The focus of this course is providing the student with advanced skills in oncologic patient care and assessment. Students are required to

demonstrate, under varying patient conditions, physical and psychological assessment, cause and effect of clinical laboratory values, management of oncologic emergencies and treatment regimens of radiation induced site-specific treatment side effects. This course contains a laboratory component.

**RT 4306 Technical Radiation Oncology (3 SCH)**

Students master basic concepts of radiation therapy and the technical aspects of radiation oncology, including: custom block, mold and immobilization fabrication, intensity modulated radiation therapy, stereotactic radiosurgery, intraoperative radiotherapy and brachytherapy. Principles of surgery and oncology are presented. Students are required to participate in hands-on simulation laboratory activities. A detailed study is presented of the operation and function of radiotherapeutic equipment to include linear accelerators, cobalt units, superficial and orthovoltage units. Students are required to identify equipment faults and the appropriate responses to clearing faults.

**RT 4309 Special Applications in Radiation Oncology (3 SCH)**

This course presents principles of advanced practice, such as fusion imaging, respiratory gating and stereotactic radiosurgery, as well as current advancements in treatment techniques.

**RT 4310 Radiation Therapy Physics (3 SCH)**

This course reviews atomic structure, interactions with matter and inverse square law. Equivalent Square and interpolation of data are introduced. Acquisition of radiation beam data, parameters required in accurate dose calculation, the effects of wedges, blocking, filters and beam configuration are discussed. Students are required to demonstrate accurate dose calculations for various beam configurations.

**RT 4311 Radiation Therapy Treatment Planning and Dosimetry (3 SCH)**

This course stresses the application of brachytherapy calculative techniques, evaluation of distributions to calculate implant duration, analysis of emerging technology and terminology as they relate to current practice, comparing and contrasting hand calculations and combinations to computer output and applying formula calculations to advanced and complex treatment problems. Specific disease and site-specific concepts of treatment planning and medical dosimetry are presented. Students demonstrate their understanding of external photon and electron beam treatment planning in the production and analysis of treatment plans for head and neck, central nervous system, thoracic, breast, abdominal and pelvic tumors.

*Prerequisite: RT 4310*

**RT 4312 Quality Management in Radiation Oncology Therapy (3 SCH)**

This course is an in-depth study of quality management and quality assurance components in radiation oncology. Students are required to demonstrate the knowledge and skills to develop a quality management program that includes allocation of human and physical resources; quality assurance and acceptance testing of linear accelerators, simulators and brachytherapy sources; patient and personnel protection policies; and patient and professional satisfaction. Data collection and analysis of quality indicators are required. Students are required to complete a hands-on laboratory component.

**RT 4314 Clinical Radiation Oncology II (3 SCH)**

This course presents an in-depth study of multidisciplinary treatment of the cancer patient from the clinician's viewpoint. Students are required to master concepts specific to site-specific disease including histopathology, etiologic and epidemiology factors, detection and diagnosis, tumor stage and grade, routes of metastases, dose fractionation and prognostic factors. This course is designed to approach each cancer type by anatomic system, addressing treatment factors with increasing degrees of complexity.

**RT 4320 Clinical Education in Radiation Therapy IV (3 SCH)**

This course provides supervised clinical education in which students are required to demonstrate ARRT competency in treatment planning and delivery, quality assurance, patient care, block and mold fabrication, brachytherapy procedures along with advanced program competencies and professional growth. Students are assigned a mentor for the development of a master-apprentice relationship.

**RT 4321 Clinical Education in Radiation Therapy V (3 SCH)**

This course provides supervised clinical education in which students are required to demonstrate ARRT competency in treatment planning and delivery, quality assurance, patient care, block and mold

fabrication, brachytherapy procedures along with advanced program competencies and professional growth. Students are assigned a mentor for the development of a master-apprentice relationship.

*Prerequisite: RT 4320*

**RT 4322 Clinical Education in Radiation Therapy VI (3 SCH)**

This course is a continuation of RT 4321. Students are assigned a mentor for the development of a master-apprentice relationship and will be responsible for a demonstration of final competency.

*Prerequisite: RT 4321*

**RT 4390 Adaptive Radiation Therapy (3 SCH)**

Students will demonstrate problem-solving and critical thinking skills related to the verification of treatment accuracy using various imaged guided techniques. Situations presented will require technical and professional judgment as they relate to accuracy of patient treatment.

## Faculty

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