A MODERATELY Sized Graduate School with around 450 Students

Average Time to Degree for PhD at the GSBS 5.3 Years (Less than the National Average)

The Student Body Includes Approximately

- 30% of its Population from Texas,
- 27% from the U.S. (Not from Texas), and
- 43% who are international students

~630 Faculty with Appointments at UTHealth Houston or MD Anderson Cancer Center

1,200 Avg Applications Received for Fall Admissions

190 Avg Admitted

47 MD/PhD Students Enrolled (Average 5 Slots/Year)

GSBS Students have access to shared resources through the Gulf Coast Consortium (GCC), which includes other prominent academic institutions in the region: The University of Texas Medical Branch, Rice University, Baylor College of Medicine and University of Houston
TWO POWERHOUSE INSTITUTIONS
A first-of-its-kind partnership, The University of Texas MD Anderson Cancer Center and The University of Texas Health Science Center at Houston (UTHealth Houston) partner to train the next generation’s scientists in the world’s largest medical center. Guided by researchers at the forefront of their field, students conduct groundbreaking research that address healthcare’s most pressing needs.

DEDICATED TO GRADUATE STUDENTS
Focused on your success, our priority is the education and training of graduate students. With master’s and doctorate degrees as the only programs offered at our school, we dedicate our resources and time toward creating a flexible course of study individualized to your interests. We also offer mentoring, career development, and internship opportunities that allow you to explore the many paths open to graduates of The University of Texas MD Anderson Cancer Center UTHealth Houston Graduate School of Biomedical Sciences (GSBS). Our student-centered approach will help you find your passions and create opportunities to turn your passions into a career.

MULTIDISCIPLINARY COLLABORATION
Our distinguished faculty have academic interests that span a wide breadth of basic and translational research areas. A true umbrella program, students can choose the program that most aligns with their interests.

OUR VISION
To create a collaborative and innovative academic environment that inspires and lays the foundation for new generations of biomedical scientists to realize their potential, commit to success, and make discoveries that have major impact on treatment of diseases worldwide.

“What drew me to the GSBS was the fact that two major institutions are together and that opens up the resources that are available to me.”
- Anupallavi Srinivasamani
BIOCHEMISTRY AND CELL BIOLOGY
A rigorous, interdisciplinary program that focuses on understanding fundamental principles governing normal and disease states at the molecular and cellular level. Faculty interests span many fields, including neurobiology, cancer biology, pharmacology, metabolism, cardiac, lung, renal, and gastrointestinal biology.

CANCER BIOLOGY
Provides students with the highest quality of training in diverse areas of cancer biology research. Faculty interests encompass basic mechanistic studies in molecular biology, genetics, cell biology, radiation physics, and other cancer related fields. The program features the world’s leading experts in cancer metastasis and cancer cell signaling research.

GENETIC COUNSELING
The Genetic Counseling program is a two-year specialized masters’ program founded in 1989, the oldest program in Texas. Traditional areas of focus are: prenatal, cancer and medical genetics, with some students working in diagnostics labs, industry, and other areas. This competitive program prepares students for the growing field of genetic counseling with didactic coursework, a mentoring program, and robust clinical rotations with highly-trained faculty and clinical supervisors. The program also places an emphasis on psychosocial training to prepare future counselors to deliver the most compassionate care possible.

GENETICS AND EPIGENETICS
Research in this program features fundamental genetic, epigenetic, and genomic mechanisms that control cell growth and differentiation, and that cause cancer and other human diseases. From basic science investigations to translational studies, program students are actively engaged in the pursuit of new scientific knowledge that could one day lead to clinical advances.

IMMUNOLOGY
The Immunology Program ensures that students receive advanced training in basic and translational immunology research. Main areas of faculty research include cancer immunology, infectious diseases, and inflammation with special interests in innate responses, adaptive responses, immune regulation, development of prophylactic vaccines, and development of vaccines or immunotherapy for a form of cancer, allergy or autoimmunity. Collectively, their research reflects the complexity and diversity of the immune system.
MEDICAL PHYSICS
The Medical Physics Program prepares students for a profession that combines principles of physics and engineering with those of biology and medicine to effect better diagnosis and treatment of human disease while ensuring the safety of the public, our patients, and those caring for them. The program offers a Specialized Master of Science degree (SMS) and a Doctor of Philosophy degree (PhD).

MICROBIOLOGY AND INFECTIOUS DISEASES
Students are trained in the fundamental knowledge and the latest developments in microbiology and infectious diseases. Program faculty exploit the advantages of microbes to understand fundamental biological phenomena, including gene expression, cell division, membrane biogenesis, macromolecular transport, multicellular development, and cellular differentiation. Faculty also apply molecular genetics and biochemistry to understand the basis for infectious disease.

NEUROSCIENCE
The Neuroscience Program promotes interdisciplinary training that crosses traditional departmental boundaries and offers a rigorous foundation in the core concepts of neuroscience. Ongoing research in the program employs a wide array of techniques and includes multiple levels of investigation, ranging from genes, molecules, and cells to neural networks, systems, and behavior.

QUANTITATIVE SCIENCES
The Quantitative Sciences Program trains researchers who will contribute to biomedical research by developing new methods for the design and analysis of research studies and by formulating mathematical models of biologic systems, thereby contributing to our understanding of cancer biology and disease processes. Faculty employ biostatistics, bioinformatics, systems biology, and genomics to develop and apply statistical and mathematical models in close collaboration with biomedical researchers.

THERAPEUTICS AND PHARMACOLOGY
The Therapeutics and Pharmacology Program trains students to apply hypothesis testing to research that includes experimenting in both preclinical laboratories and mouse models and validating preclinical efforts. Students also receive exposure to high-throughput screening and structure-based drug design, DNA targeting and cell replication, DNA damage and repair responses, the principles of medicinal chemistry, mechanisms of therapeutics, and clinical applications of target-based therapeutics and disease prevention.

PROGRAM INFORMATION
CUTTING-EDGE RESEARCH AND DISCOVERIES
Graduate School faculty members have appointments at one of UTHealth Houston’s other five schools or MD Anderson, providing students with access to a comprehensive collection of biomedical talent. Our faculty take an interdisciplinary approach to their work, affiliating with multiple GSBS programs that provide perfect environments for collaborations to thrive.

OUR FACULTY — LEADING ACROSS DISCIPLINES
Wenbo Li, PhD, is an associate professor in the Department of Biochemistry and Molecular Biology at McGovern Medical School at UTHealth Houston and affiliates with GSBS Programs in Biochemistry and Cell Biology, and Genetics and Epigenetics. In his research, he uses -omics and novel biochemical approaches to characterize the 3D structure of the human genome and understanding the role of enhancer derived non-coding RNAs in the role of disease.

Using cutting edge spectroscopic and electrophysiology methods, the lab of Vasanthi Jayaraman, PhD, professor in Department of Biochemistry and Molecular Biology at McGovern Medical School and GSBS Programs in Biochemistry and Cell Biology, and Neuroscience faculty member, examines neurotransmission with a focus on agonist-mediated changes of glutamate receptors. Better understanding of the structure and functional changes may aid in drug design for neuropathologies such as epilepsy and ischemia, targeted to this receptor.

Charles Darkoh, PhD, an associate professor at UTHealth Houston School of Public Health, a GSBS alumnus, and Microbiology and Infectious Diseases Program faculty member, holds several patents for his work in enteric infectious disease to understand mechanisms involved in C. difficile toxin regulation, with the goal of development novel therapies that evade drug resistance of this microbe.

Guillermina Lozano, PhD, a professor and chair in the Department of Genetics at MD Anderson who affiliates with the GSBS Programs Cancer Biology, and Genetics and Epigenetics, was the first scientist to establish p53 as a transcription factor. Her lab uses mouse models to understand alterations of the p53 pathway in understanding development and tumorigenesis. She is also a member of the National Academy of Sciences and American Academy of Arts and Sciences.

The laboratory of Nicholas E. Navin, PhD, professor in the Departments of Genetics and Bioinformatics and Computational Biology at MD Anderson who affiliates with the Programs in Genetics and Epigenetics, and Quantitative Sciences, uses experimental and computational approaches to breast cancer’s response to chemotherapy. His lab pioneered single cell sequence technologies, a critical tool in understanding cancer evolution and genomic diversity in tumors.

GSBS faculty at MD Anderson are among the premier cancer experts in their fields.
AWARD-WINNING INNOVATION AND EDUCATION

Graduate School faculty members are recipients of numerous awards such as the Lasker Foundation Award, the Pezcoller Foundation American Association for Cancer Research (AACR) International Award for Extraordinary Achievement in Cancer Research, and are members of prestigious professional associations including the National Academy of Sciences and the American Association for the Advancement of Science (AAAS).

In 2018, GSBS faculty member and MD Anderson Cancer Center investigator James P. Allison, PhD, was awarded the Nobel Prize in Physiology or Medicine for launching an effective new way to attack cancer by treating the immune system rather than the tumor.

Allison’s work led to development of the first immune checkpoint inhibitor drug, Ipilimumab; approved for late-stage melanoma by the U.S. Food and Drug Administration in 2011.

Another award-winning scientist, recognized by AAAS for her work in musculoskeletal and craniofacial disorders, is GSBS faculty member Jacqueline T. Hecht, PhD, a professor in the Department of Pediatrics at McGovern Medical School, and associate dean for research at UTHealth Houston School of Dentistry. In 1989, Dr. Hecht created The University of Texas GSBS Genetic Counseling Program, the oldest program of its kind in Texas, and producer of hundreds of genetic counseling professionals.

With faculty committed to superb science and education, the GSBS is an ideal choice for any student of the biomedical sciences.
ONE APPLICATION, MANY POSSIBILITIES

Students interested in our MS, Specialized MS or PhD in biomedical sciences use our online application to apply to the degree program of their choice.

The GSBS is a true umbrella and students are admitted directly to our school.

FUNDING AND BENEFITS:

Currently, all PhD students receive a competitive stipend of $36,000.

MS in biomedical sciences students are eligible for a competitive stipend.*

Benefits for students who receive stipends include:

• Paid tuition and fees
• Paid health insurance
• Access to many wellness resources for low or no cost

*MS in biomedical sciences students are self-funded until a lab is chosen; stipends vary.

THE REQUIRED MATERIALS FOR A COMPLETE APPLICATION INCLUDE:

• Online Application
• Transcripts (all institutions of higher learning attended)
• Curriculum Vitae
• Research Statement
• Personal Statement
• Letters of Recommendation
• Application Fee
• Optional Statement
• TOEFL scores (international applicants)*

NO GRE REQUIRED! (exception: Medical Physics)

*TOEFL required for applicants who have not received a degree where English is the primary language of instruction.
APPLICATION DEADLINES!

- PhD program in Biomedical Sciences: **DECEMBER 1**
- MS program in Medical Physics: **DECEMBER 1**
- MS program in Genetic Counseling: **DECEMBER 1**
- MS program in Biomedical Sciences: **APRIL 1**

READY TO APPLY?
Visit: gsbs.uth.edu/admissions

YOUR GRADUATE SCHOOL JOURNEY

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- JOIN A LAB
- JOIN A PROGRAM
- FORM A COMMITTEE
- CANDIDACY EXAM
- DISSERTATION DEFENSE

- COMPREHENSIVE CORE CURRICULUM
- FIRST CLASS RESEARCH
- OUTSTANDING STUDENT SUPPORT

*For MS in Biomedical Sciences, no rotations or candidacy exam; select lab and program end of first Fall term.
A TANGIBLE COMMITMENT
At the GSBS, Diversity, Equity, and Inclusion (DEI) are critical to our mission and are demonstrated in our dedicated services, recruitment efforts, and our community.

OUR COMMUNITY*
60% WOMEN
43% INTERNATIONAL
31% URM*
14% DISADVANTAGED

Based on 2020 enrollment; all degree programs; 10% of respondents from the GSBS Climate Survey 2020 identified as LGBTQ+

*URM (Underrepresented minorities)=NIH defined groups as underrepresented - Blacks, Hispanics/Latinx, Native Americans, and Pacific Islanders

OUR INITIATIVES
Our initiatives begins with outreach and recruitment at organizations and institutions committed to the success of students historically minoritized in the biomedical sciences. Annually we attend large conferences: Annual Biomedical Research Conference for Minoritized Students (ABRCMS), Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), and outreach to Minority Serving Institutions. Our newest initiative, The Academy at the GSBS epitomizes our culture of belonging. Each cohort of the Academy represents scholars from around the country focused on leadership, professional development and success while building essential connections.
A VIBRANT COMMUNITY OF GRADUATE STUDENTS
The GSBS celebrates and recognizes our students through many exciting ways.

STUDENT ASSOCIATIONS
We acknowledge the collective student voices through our student run-student driven student associations. Each one serves a distinct purpose and provides a community of support, affinity, and interest.

STUDENT CELEBRATIONS
Annually we recognize the significant accomplishments of our graduate students through several student centric events. GSBS Student Research Day (GSRD) a popular event featuring poster, oral and elevator speech competitions for students to present their research. Lab Coat ceremony marks the major milestone of choosing a research advisor, and Graduate Student Appreciation Week (GSAW), is several days of celebrations to show GSBS students how important they are to our community. These key events provide opportunities for students to share their research, win prizes, gain mentorship from alumni and other scientists, and recognition from their labs and colleagues.
DEVELOPING THE WHOLE STUDENT

The GSBS and our parent institutions provide a wealth of support for holistic student needs during enrollment and after graduation.

WELLNESS RESOURCES

The GSBS is committed to the well-being of our students and believes wellness in all forms is the foundation of student success. We do this through several services:

- GSBS-sponsored seminars and wellness activities and resources
- Student health and counseling services that are affordable or free:
  - UTHealth Houston Student Health & Counseling Services provides integrated healthcare addressing students’ physical and mental well-being needs at one place
  - MD Anderson Employee Assistance Program (EAP) is a diagnostic, consultation, and referral service for employees experiencing personal, relationship, or work-related difficulties
  - UTHealth Houston Employee Assistance Program (EAP) offers a variety of services including counseling consultation services with licensed mental health professionals, legal and financial resources, and worklife referrals

CAREER DEVELOPMENT SERVICES

The Office of Career Development at the GSBS is devoted to student success with a dedicated staff member to guide you to the best career path based on your individual interests and goals.

Services include:

- Individual career advising
- Career planning using the individual development plan (IDP)
- Internship navigation and process
- Career exploration seminars/process for GSBS students
- Assistance with job readiness tools: CV/resume, LinkedIn profiles
- Promotion of job, postdoc, internship, and fellowship opportunities

GRANT NAVIGATOR SERVICES

While all PhD students have a guaranteed stipend, a huge marker of success is obtaining independent funding. GSBS offers individualized and group assistance through our: 1) dedicated grant navigator and 2) NIH fellowship proposal development course (8-weeks).

Students receive:

- Guidance on preparing and submitting a fellowship proposal
- Access to proposal examples, videos, and templates
- Guidance on training plan development
- Assistance with support letters
- Individualized feedback and support
In April 2019, NASA’s Twins Study summary paper was published in the journal Science and had an out-of-this-world impact on the scientific community, but it also had a local connection beyond the Johnson Space Center thanks to the work of alumna Brinda Rana, PhD.

Rana, a professor in the Department of Psychiatry at the University of California, San Diego School of Medicine, was an investigator on two projects that were part of the study. She earned her PhD in Human and Molecular Genetics in 1999. Her advisor was Wen-Hsiung Li, PhD.

“This first-of-its-kind investigation has provided clues about how a long-duration space flight changes the regulation of molecules in the body, and the relationship of these changes with physiological changes in the body due to space flight such as vascular remodeling and vision problems,” said Rana.

The study consisted of 10 teams of investigators around the nation who have been observing and assessing identical twin astronauts, Scott and Mark Kelly. Scott Kelly flew aboard the International Space Station (ISS) for 342 days in 2015 and 2016 while his identical twin brother, Mark Kelly, remained on Earth.

Rana’s co-investigators at UC San Diego and the Johnson Space Center conducted physiological measures aimed at capturing the development of SANS and cardiovascular changes due to space flight. In parallel with the physiological studies, Rana’s team conducted metabolomics, proteomics, and mitochondrial function analyses.

Twin Investigators coordinated sample collection and transport from the ISS and also collected samples in Russia when Scott Kelly returned to Earth.

“The challenge was to collect enough biofluids onboard the ISS at multiple time points throughout the year for all 10 investigative teams to conduct this comprehensive omics view of the human body in space,” said Rana. “Blood volume drops in space and the astronauts are chronically dehydrated. These factors add to the difficulty of obtaining samples in space. Our study established protocols for collecting and transporting samples for future multi-omics studies on astronauts.”

“The results will serve as a roadmap for future interdisciplinary studies aimed at better understanding potential health risks of long-duration missions and developing personalized countermeasures.”

Information for this story was provided by a news release from UC San Diego School of Medicine.

In August 2020, Rena N. D’Souza, DDS, PhD, was named as director of NIH’s National Institute of Dental and Craniofacial Research (NIDCR). She earned her MS in 1984 and PhD in 1987, both in Molecular Pathology. Her advisor was Barnet Levy, DDS.

As NIDCR director, D’Souza will oversee the institute’s annual budget of over $475 million, which supports basic, translational, and clinical research in areas of oral cancer, orofacial pain, tooth decay, periodontal disease, salivary gland dysfunction, craniofacial development, and disorders and the oral complications of systemic diseases. The institute funds approximately 770 grants, 6,500 researchers, and 200 organizations. Additionally, NIDCR supports research training and career development programs for approximately 350 people at various stages of their careers, from high school students to independent scientists.

D’Souza has been a principal investigator on multiple NIH and other federal grants since 1987 and has published 140 peer-reviewed journal papers and book chapters. Her research focuses on developmental biology and genetics; matrix biology; biomaterials, tissue engineering and stem cells; and clinical research. Her group’s discovery that a novel mutation in PAX9 was responsible for a severe form of human tooth agenesis opened a new field of research to discover genes and mutations as well as therapies for common human inherited disorders of the craniofacial complex.
EXCELLENCE ABOVE ALL
The most comprehensive academic health center in the Gulf Coast Region, UTHealth Houston is comprised of six health science schools.

- Jane and Robert Cizik School of Nursing
- John P. and Kathrine G. McGovern Medical School
- Graduate School of Biomedical Informatics
- MD Anderson UTHealth Houston Graduate School of Biomedical Sciences
- School of Dentistry
- School of Public Health

RESEARCH
- $240 million expended in sponsored projects
- 891 new and continuing research awards received
- $4.5 million in royalty and license fee income from research commercialization efforts

UTHEALTH HOUSTON MISSION STATEMENT
As a comprehensive health science university, the mission of The University of Texas Health Science Center at Houston is to educate health science professionals, discover and translate advances in the biomedical and social sciences, and model the best practices in clinical care and public health. We pursue this mission in order to advance the quality of human life by enhancing the diagnosis, treatment, and prevention of disease and injury, as well as promoting individual health and community well-being.

UTHEALTH HOUSTON VISION STATEMENT
Excellence above all in the quest to be an acknowledged leader in the collaboration to treat, cure and prevent the most common diseases of our time through education, research and clinical practice.
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.

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®.

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. MD Anderson Cancer Center is:

- The #1 rated cancer center in the nation
- Home to six National Academy of Science members
- The largest recipient of funds from the National Cancer Institute (NCI)
- An NCI designated Comprehensive Cancer Center

RESEARCH

- Nearly $785,000,000 in revenue used for research
- Over $500,000,000 in external funding (including federal and private grants)
- Received more than $44,000,000 from the Cancer Prevention & Research Institute of Texas (CPRIT)
At the forefront of the life sciences frontier is the Texas Medical Center (TMC), the largest medical city in the world. This epicenter of medical innovation houses both the world's largest children's hospital and cancer hospital. The storied history of the TMC includes the world's first coronary artery bypass procedure, the first total artificial human heart transplant, the first private hospital air ambulance service, and the first successful implantation of an electric, portable heart pump.

Our central location allows GSBS students to enjoy the benefit of cross-institutional support and collaboration with clinicians and researchers from nearly 50 different TMC member institutions, including Memorial Hermann Hospital, the Michael E. DeBakey Veterans Affairs Medical Center, Texas Children's Hospital, the Texas Heart Institute, TIRR Memorial Hermann, CHI St. Luke's Health, and Methodist Hospital.
More than 2.2 million residents call Houston, Texas home, making it the country’s fourth-largest city. Many expect typical Texans to walk around in their cowboy boots and hat, always at the ready to ride a bull or two-step the night away on the dance floor. But visitors and transplants soon discover what this cultural epicenter truly has to offer: something for everyone.

The Bayou City is the most diverse metro area in the country, ahead of both New York and Los Angeles. This diversity has boosted Houston’s food scene, with 10,000 restaurants serving the cuisine of over 70 different countries and cultural regions and has given rise to its own innovative culinary styles. Where else can you eat breakfast tacos, kolaches, fajitas, chimichangas, and viet-cajun crawfish all in one day? Our city and its chefs are regularly celebrated for their exciting food by the James Beard Foundation and was named the “newest capital of great food” by Food & Wine.
The only thing more difficult than deciding what to have for dinner is choosing how to spend your day. Perhaps the best-known Houston institution is Johnson Space Center, home to NASA's Mission Control. But just walking distance from the Texas Medical Center is the Museum District, with more than 19 museums and cultural institutions including the Museum of Fine Arts, Houston, the Houston Museum of Natural Science, and the 55-acre Houston Zoo. The Menil Collection is a hidden gem, housing around 15,000 pieces created as early as the Paleolithic area, and the Rothko Chapel.

Not far from the museums is the 17-block Theater District, home to Houston’s premiere performance companies: the Houston Symphony Orchestra, Houston Grand Opera, Houston Ballet, the Alley Theatre, and numerous permanent arts organizations. Music lovers are also treated to a healthy live music scene, with the three largest venues just a rail ride away.

No matter what time of the year, sports fans are treated to year-round competition from the Astros (baseball), Rockets (basketball), Dynamo (mens’ soccer/football), Dash (womens’ soccer/football), SaberCats (rugby), Texans (NFL football), and Roughnecks (XFL football).

WELCOME TO HOUSTON

JUST A FEW OF HOUSTONS’ BIG EVENTS:

- Houston Livestock Show and Rodeo
- Art Car Parade
- PRIDE Houston
- Houston Restaurant Week
- Zoo Lights
- Chevron Houston Marathon
- Texas Renaissance Festival
- Houston Open Golf Tournament
- Wings Over Houston Airshow
- Houston Ballet’s Nutcracker