The University of Texas Graduate School of Biomedical Sciences (GSBS) at Houston is a joint venture of UTHealth and The University of Texas MD Anderson Cancer Center (MDACC) that offers Ph.D. and M.S. degrees in Neuroscience. Training in Neuroscience at the GSBS began in 1978 to provide high quality opportunities in a variety of scientific disciplines associated with understanding the function and diseases of the nervous system. Areas of research concentration within the Program include cellular, molecular, systems, computational, and visual neuroscience. There are 50+ GSBS faculty members and 30+ graduate students representing sixteen departments of UTHealth and MD Anderson currently in The Neuroscience Graduate Program.

All Neuroscience Ph.D. students receive full financial support throughout their training, which includes tuition, fees, stipend and benefits. Annual competitive awards are also available for outstanding research projects and posters, and to support student travel to scientific meetings. For more information please visit neurograd.org.

Students must complete the following requirements to obtain the degree of Doctor of Philosophy with a specialization in Neuroscience:

**Research Rotations:** First-year students obtain hands-on research experience by participating in Research Tutorial Rotations in three different laboratories.

**Coursework:** All students in Neuroscience are required to take the GSBS Fundamentals of Biomedical Science course and four Program Core Courses (Molecular Neurobiology, Cellular Neurophysiology, Intermediate Cognitive Neuroscience and Systems Neuroscience). Also required are the Ethical Dimensions of Biomedical Science, Neuroanatomy, and advanced courses which differ depending on the program track pursued. Core Courses must be taken for credit and a grade of “B” or better must be earned.

**Advancement to Candidacy**
Because the field of neuroscience is so large, we have constructed four tracks to better reflect the breadth of the field. Based on their interests, our students receive specialized training to prepare for different aspects of neuroscience research.

**Cellular & Molecular Neuroscience Track**
The Cellular and Molecular Neuroscience track trains students to understand neuronal function by integrating biochemical, physiological, cellular, and molecular biological approaches. Areas of focus include: synapse formation and plasticity, protein trafficking, signal transduction, neuropsychiatric and neurodegenerative disorders, and neuronal development/injury.

**Cognitive & Systems Neuroscience Track**
The Cognitive and Systems Neuroscience track trains students to bridge the diverse range of approaches and techniques required to investigate the brain mechanisms for complex behavioral phenomena such as learning, memory, attention, language, cognition, emotion, sensation perception, and movement.

**Theoretical & Computational Neuroscience Track**
The Theoretical and Computational Neuroscience track focuses on the broad range of computational and analytical skills essential to understand the organization and function of complex neural systems.

**Visual Neuroscience Track**
The Visual Neuroscience track provides an interdisciplinary training environment in vision research. Areas of focus include molecular and developmental neurobiology, cell biology, cellular biophysics, structural biology, genetics, anatomy and plasticity of neural circuitry, circadian biology, experimental pathology, single electrode and electrode array recording, intrinsic optical imaging, functional magnetic resonance imaging (fMRI), cognitive and behavioral studies, and computational modeling.

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**Coursework**

- **FALL**
  - Fundamentals of Biomedical Sciences
  - Ethics
  - Lab Rotation #1

- **SPRING**
  - Molecular Neuroscience
  - Cellular Neurophysiology
  - Lab Rotations #2 & #3

- **FALL**
  - Systems Neuroscience
  - Cognitive Neuroscience

- **SPRING**
  - Scientific Writing
  - Elective Courses

- **third year+**
  - Dissertation research

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**Requirements**

- **Exam:** All students must advance to candidacy by the end of his/her second year.

- **Defense of Dissertation:**
  - A student must defend their dissertation project in an exam that consists of two parts: A public presentation of the dissertation work (followed by public discussion) and an oral defense (in a closed session with the student’s Supervisory Committee).

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Diasynou Fioravante, Ph.D.
2006 NGP graduate (Byrne Lab) and assistant professor at UC Davis

“Through solid class offerings, opportunities for research distinctions and travel awards, the Neuroscience program at UT-Houston provided me with a strong foundation for a successful academic career.”
Jaroslaw Aronowski, Ph.D. • Neurology • Neuropharmacology and laboratory models of ischemic stroke and intracerebral hemorrhage

Tatiana Barichello, Ph.D. • Psychiatry & Behavioral Sciences • neuroinfection, host immune response, memory impairment, behavioral changes

Andrew Bean, Ph.D. • Neurobiology and Anatomy • Molecular mechanisms of endocytosis

Michael Beierlein, Ph.D. • Neurobiology & Anatomy • Synaptic and local circuit dynamics in the thalamocortical system

John Byrne, Ph.D. • Neurobiology & Anatomy • Neural and molecular bases of learning and memory

Raymond Cho, M.D., M.Sc. • Psychiatry & Behavioral Sciences • cognitive control, brain oscillations, EEG/MEG, MRI, computational modeling, neurostimulation (tDCS, tACS, TMS), schizophrenia, bipolar disorder

Nachum Dafny, Ph.D. • Neurobiology & Anatomy • Mechanisms of pain, pain suppression, stress, and drugs of abuse

Robert Dantzer, Ph.D. • Symptom Biology (MDACC) • Behavioral and psychopathological consequences of cancer therapy on the brain

Pramod Dash, Ph.D. • Neurobiology & Anatomy • Mechanisms of memory formation and memory dysfunction

Joao De Quevedo, M.D., Ph.D. • Psychiatry & Behavioral Sciences • Neurological basis of psychiatric disorders, innovative treatments with emphasis in mood disorders and schizophrenia

Fabricio Do Monte, D.V.M, Ph.D. • Neurobiology & Anatomy • Neural mechanisms of innate fear and reward and their interactions

Patrick Dougherty, Ph.D. • Anesthesiology & Pain Management • Neurobiology, neurophysiology, and pharmacology of the spinal dorsal horn

Valentin Dragoi, Ph.D. • Neurobiology & Anatomy • Cortical Mechanisms of Visual Behavior

Daniel Felleman, Ph.D. • Neurobiology & Anatomy • Organization, function, and plasticity of primate cerebral cortex

Myriam Fornage, Ph.D. • Research Center for Human Genetics • Genetic basis of cardiovascular disease

Michael Galko, Ph.D. • Biochemistry & Molecular Biology (MDACC) • Drosophila genetics, molecular genetics of tissue repair, cell migration, signaling transduction, pain sensitization

Vidy Gopalakrishnan, Ph.D. • Pediatrics (MDACC) • Therapeutic targets for medulloblastoma

Ruth Heidelberger, M.D., Ph.D. • Neurobiology & Anatomy • Mechanisms of neurotransmitter release

Cobi Heijnen, Ph.D. • Symptom Research (MDACC) • Mechanisms and therapeutic approaches of cancer treatment-induced neurotoxicities

Roger Janz, Ph.D. • Neurobiology & Anatomy • Synaptic vesicle proteins as regulators of neurotransmitter release

Vasanthi Jayaraman, Ph.D. • Biochemistry & Molecular Biology • Regulation of the structure of membrane proteins

Nicholas Justice, Ph.D. • Institute of Molecular Medicine • Mechanisms of CRF perturbation in Alzheimer’s Disease

Annemieke Kavelaars, Ph.D. • Symptom Research CAO (MDACC) • Pathophysiology of cancer therapy-induced physiological/behavioral toxicity

Scott Lane, Ph.D. • Psychiatry & Behavioral Sciences • Substance use disorders, antisocial personality disorder

Yin Liu, Ph.D. • Neurobiology & Anatomy • Computational biology and bioinformatics

Kimiya Memarzadeh, Ph.D student
“The Neuroscience at the GSBS has such a wide breadth of research – from molecules to behavior. Our faculty members are so student-oriented and accessible; they really care about the success of the students.”

Monica Gireud, Ph.D student
“There’s so much that is unknown. There are very few cures and often little understanding of why diseases affect the brain. It’s fascinating. It’s exciting.”
In precise register with SAP102 immureactive B-type HC processes. A horizontal section showing SAP102 immunoreactivity (blue) was localized to tips of B-type HCs. Syn3B-positive (green) photoreceptor terminals exist in precise register with SAP102 immureactive B-type HC processes. A. Vila and C. M. Whitaker.
Neurobiology Seminar Series. Neurobiologists from around the country are invited to present their latest findings. In addition to the afternoon lecture, our students have the opportunity to network with each speaker over lunch.

Lab Update Series. Labs in the Neuroscience Program presents their most recent findings. This gives everyone to catch up on ongoing projects, offer constructive criticism, and suggest collaborative experiments with other labs.

Annual Retreats. Students take a short break from lab to attend special lectures given by program alumni, student presentations, and poster competitions.

Picnic/Socials. Faculty and students have the chance to get together to enjoy good food and good weather.

Annual Research Poster Sessions. Students have the chance to win cash prizes and travel awards to fund trips to the annual Society for Neuroscience (SfN) meeting and other conferences.

Student-Organized Journal Club. Students present and lead discussions about an interesting paper, topic, or technique. At the end of the year, the two best presenters are awarded prizes.

Outreach/Volunteer Opportunities. Students have the chance to give back to the Houston community. In the past, our students have sorted food for the Houston Food Bank, judged science and engineering fairs, and explained neuroscience concepts to local elementary students at the Neuroscience Research Center’s annual Brain Night at The Health Museum.

Not Another Seminar Series. How did you become the scientist you are today? Each month, a different faculty member joins students to talk about his/her life. This isn’t just about research. It’s about motivations, career paths, and the bigger picture.

Teaching Assistant Opportunities. Students who want to get hands-on experience in the classroom may sign up to teach various undergraduate or graduate courses throughout the year.

Neuroscience All-Request Fridays (NARFs). Students, faculty, and other invited guests host workshops geared towards career development, presentation skills, networking, and other technical skills not covered in classes. Requested by students, for students.
about the graduate school

The University of Texas Graduate School of Biomedical Sciences at Houston (GSBS) is a unique partnership between the University of Texas MD Anderson Cancer Center and UTHealth, institutions that are leading the fight against cancer and other major diseases that impact human health and quality of life. Graduate studies under a GSBS faculty mentor will provide students with training in the most significant areas of the biomedical sciences, including research to improve understanding of disease mechanisms at molecular, genetic, cellular and systems levels, and approaches to develop novel targeted therapies for human disease. GSBS is located in the Texas Medical Center, one of the world's largest biomedical education and research facilities. Visit gsbs.uth.edu for more information.

how to apply

This applies to all applicants (US Citizens, Permanent Residents and International Applicants)

The final deadline for all application materials to be submitted for the Ph.D. program is January 4, 2017.

The deadline to apply for the M.S. program in Biomedical Sciences is April 1, 2017.

Cameron Jeter, Ph.D
2011 NGP graduate
(Sereno Lab) and Assistant Professor at UTHealth

“The Neuroscience program equipped me with skills I didn’t fully appreciate until becoming a faculty member. Program faculty continue to foster my scientific and professional growth as mentors, collaborators, and advocates.”
City of Houston

Houston, the fourth largest city in the nation, is located on a coastal plain fifty miles from the Gulf of Mexico and has a southern climate. Houston is a modern dynamic city, rich in cultural diversity that reflects its multiethnic mix.

Houston has emerged as a cultural center for the Southwestern United States. The seventeen-block Theater District is home to eight performing arts organizations, including the Houston Ballet Company, the Houston Symphony, the Houston Grand Opera, and the Alley Theater. The Museum of Fine Arts, the Contemporary Arts Museum, and the Houston Museum of Natural Science all offer outstanding exhibitions. Numerous smaller museums and art galleries can also be found in the Museum District, just one mile north of the Texas Medical Center. These notably include the Menil Collection and Rothko Chapel.

Sports enthusiasts can take advantage of professional sports action year round. Houston is home to a number of professional sports teams: the Texans play at NRG stadium (NFL, football), the Dynamo and Dash play at BBVA Compass Stadium (MLS and NWSL, soccer), the Rockets play at Toyota Center (NBA, basketball), and the Astros play at Minute Maid Park (MLB, baseball). In addition, Houston’s close proximity to the Gulf of Mexico, Galveston Bay (fifty miles) and local lakes provides access to a full range of water sports.

Among major metropolitan areas of the country, Houston has one of the lowest costs of living. In addition, the diversity and breadth of the city’s economy provides a wide array of job opportunities for spouses and family members. Low housing costs and friendly people combine to make this desirable city in which to relocate.

Contact Information

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