

SCHOLARLY CONCENTRATION in the NEUROSCIENCES

Neuroscience Co-Directors and Administrative Coordinators

Ian Butler, M.D., Professor, Pediatrics & Neurology, 713-500-7113, Ian.J.Butler@uth.tmc.edu
Administrative Coordinator, Norma L. Garcia, 713-500-5701, Norma.L.Garcia@uth.tmc.edu

John H. Byrne, Ph.D., Professor, Neurobiology & Anatomy, 713-500-5602, John.H.Byrne@uth.tmc.edu
Administrative Coordinator, Anne J. Morris, Ph.D., 713-500-5538, Anne.J.Morris@uth.tmc.edu

Goals for the Scholarly Concentrations Program

The concentrations program overall is designed to enrich the student experience through learning and scholarly activities specific to an interdisciplinary health-related topic. Goals are to:

- Complement and enhance the required curriculum
- Provide role models, mentorship, and guidance for students' academic and personal development
- Increase interdisciplinary interactions
- Provide a longitudinal educational experience through structured and experiential learning activities
- Support student scholarship

Program activities encourage the student acquisition of expertise in an interdisciplinary, health-related area, the development of critical thinking and analytical skills, the improvement of oral and written communication skills, the enhancement of self-directed learning skills, and the production of a scholarly product.

Scholarly Projects

Students participating in a Scholarly Concentration will engage in an independent, scholarly project under the guidance of a faculty mentor. Examples of possible scholarly projects include, but are not limited to, the following:

- Development of a new clinical protocol
- Original basic or clinical research
- Development of a new curriculum component or module
- Evaluation of an outreach program
- Creation of a bioengineering tool or biomedical software
- Creative medical writing

Students who successfully fulfill the concentration requirements will receive a certificate of completion and will be recognized at commencement.

Mission of the Scholarly Concentration in the Neurosciences Program

This scholarly concentration in the medical school curriculum is designed to enhance the knowledge and training of medical students interested in basic or translational research and current issues in the neurosciences. The concentration combines neuroscience research, teaching, and scientific presentations with enhanced lectures, grand rounds and seminar series.

Timeline for Student Participation and Completion of Neuroscience Concentration Requirements

Most students interested in the neuroscience concentration submit their application in the spring of Year 1. If accepted, they begin the program with the start of the Summer Research Program (see below).

Participation in the neuroscience concentration continues through second semester of Year 4.

Application Guidelines for the Neuroscience Concentration

Eligibility

Note that students interested in the neuroscience concentration are required to complete the Medical School's "Summer Research Project (SRP)" the summer after the first year of medical school. (As described below, in exceptional cases, equivalent research experiences can be acceptable with approval of the program directors.) The SRP is separate from the scholarly concentration program and has its own application, but the SRP project provides the basis for the activities in the neuroscience concentration. Thus, once students have chosen a mentor, planned their summer research, and applied to the SRP, their application to the neuroscience concentration is simple. Contact the [Office of Educational Programs](#) for current information about the SRP and its application deadline, which is well before that of the neuroscience concentration.

In some unusual cases, students may apply and be accepted into the neuroscience concentration on the basis of a research project that they organize (with a mentor) and conduct separately from the SRP. Please contact the administrative coordinators or the directors of the neuroscience concentration if you are unable to participate in the SRP and are thinking of an independent research project. If you are interested in the neuroscience concentration, you will need to discuss your research plan or interests with one or both of the concentration co-directors before you apply. They may offer helpful suggestions.

Application Deadline

The deadline for the neuroscience concentration application is usually mid-April. For individual circumstances and needs, please contact an administrative coordinator or co-director. The application is available online at <https://medapps.uth.tmc.edu/scholarlyconcentrations>.

Overview of the Neuroscience Concentration Application

Be sure to answer all five sections, or the application will be returned to you for completion. You will need to describe your background, experiences, and interest in the neurosciences -- and the concentration topics of interest to you. You will also be asked to explain how your participation in the concentration fits in with your goals for medical school and the future. You will need to provide an overview of your proposed summer research project and the names of your mentor and advisory committee members.

Preparing to Apply

If, like many first-year students, you have not yet identified a neuroscience topic you are interested in studying, you should begin exploring the many opportunities at McGovern Medical School as a first step in preparing your application for the concentration (and the SRP). Meeting with faculty members to discuss your interests and the research they are conducting may lead to an idea for your research project. Check the list of neuroscience faculty at the end of this overview of the neuroscience concentration. Each listed faculty member is open to serving as a mentor (or an advisory committee member) for students in the neuroscience concentration. Their general areas of research are listed with their names (which are clickable and will open their individual faculty page). You may also identify faculty members who are not on the list and contact them to explore possibilities for your research. Many faculty members throughout UTHealth who conduct research in the neurosciences are listed on the website of the Neuroscience Research Center (<https://med.uth.edu/nrc/>). Clicking the "Research" tab at the top of the page will open a list of neuroscience research topics. The "Faculty" tab has a list of neuroscience faculty throughout

UTHealth.

Application Review Process

The neuroscience concentration co-directors and coordinators will review applications, following an initial screening by the Office of Education. Applicants will receive a notice of the decision through the online system as quickly as possible, usually within three weeks to a month after submittal.

Requirements of the Neuroscience Concentration

The neuroscience concentration is individualized to the needs of each student, and there is flexibility in some requirements, depending on the student's unique focus. Requirements that are essential to the student's satisfactory completion of the program are summarized below.

- Completion of a research project the summer after MS1. The research project is the springboard for the student's activities throughout the concentration program.
- Attendance at the seminar course, "Current Topics in the Neurobiology of Disease," during the fall semester of Year 2. One or more additional courses over Years 2 through 4 that are relevant to the student's program should be considered with guidance from your mentor and advisory committee.
- Joining (as a student) a local, regional, or national scientific society in area of interest.
- Presentation of research project at the Neuroscience Research Center's Annual Poster Session, held in December.

Neuroscience Concentration Requirements (Didactic and Experiential)

Year 1

Required

Prepare to apply to the concentration: Identify a mentor, form advisory committee of 2-3 faculty members in area of interest, and plan summer research project
Perform summer research project with mentor between Year 1 and Year 2

Optional

Apply for stipend for summer research program
"Shadow" mentor or clinicians
Attend Grand Rounds

Year 2

Required

Continue research with mentor
Attend Grand Rounds in area of interest
Join a scientific society (as student) in area of interest
Attend GS14 1021 "Current Topics in the Neurobiology of Disease," a seminar course offered every fall semester. Topics change each year.

Optional

Attend Grand Rounds
One or more additional courses relevant to your program should be considered, over yrs. 2 – 4, with guidance from mentor.

Year 3

Required

Present research at NRC Annual Poster Session; held annually on the first Saturday in December.
Required clinical rotations should be performed in neuroscience-related field

Optional

Attend Grand Rounds
Attend GS14 1021 "Current Topics in the Neurobiology of Disease," a seminar course during fall semester.
One or more additional courses relevant to your program should be considered, over yrs. 2 – 4, with guidance from mentor.

Year 4

Required

Senior elective should be in neuroscience-related area (for example: Adult Neurology, Pediatric Neurology, Adult Neurosurgery, Pediatric Neurosurgery, Neuroradiology, Neurobiology, Adult Psychiatry, Pediatric Psychiatry, Clinical Neuroscience)
Submit final version of neuroscience research project to Advisory Committee for approval

Optional

Attend Grand Rounds
Submit paper to appropriate scientific or clinical journal
One or more additional courses relevant to your program should be considered, over yrs. 2 – 4, with guidance from mentor.
Attend GS14 1021 "Current Topics in the Neurobiology of Disease," a seminar course during fall semester.

Scholarly Concentration Faculty*

* Additional neuroscience faculty members can be considered

Faculty Name/Department

Contribution(s) to Concentration

Neurobiology and Anatomy

[Andrew Bean, Ph.D.](#)

Vesicular trafficking

[John Byrne, Ph.D.](#)

Mechanisms of learning and memory

[Pramod Dash, Ph.D.](#)

Neurobiology of head trauma

[Fabricio H. Do Monte, D.V.M., Ph.D.](#)

Fear and rewarding memories, neural circuits, rats

[Valentin Dragoi, Ph.D.](#)

Vision in nonhuman primates

[Nachum Dafny, Ph.D.](#)

Drugs and behavior, rodents

[Daniel Felleman, Ph.D.](#)

Imaging, nonhuman primates

[Ruth Heidelberger, M.D., Ph.D.](#)

Transmitter release

[David Marshak, Ph.D.](#)

Neurobiology of the retina

[Anthony Wright, Ph.D.](#)

Cognition and learning in monkeys and pigeons

Neurosurgery

[Daniel H. Kim, M.D.](#)

Robotic surgery, neuromodulation, radiographic nerve imaging

[Nitin Tandon, M.D.](#)

Brain mapping with functional MRI, electrical stimulation and diffusion tractography

[Jiaqian Wu, Ph.D.](#)

Stem cell biology, spinal cord injury, glia biology

[John P. Hagan, Ph.D.](#)

MicroRNAs, nerve cell function

Pediatric Surgery - Pediatric Neurosurgery

[Stephen Fletcher, DO](#)

brain tumors, animal models

Department of Neurology - Adult Neurology

[Louise D. McCullough, M.D., Ph.D.](#)

Cerebral vascular disease

[Kazim Sheikh, M.D.](#)

Peripheral nerve disorders, imaging nerves

[Mya Schiess, M.D.](#)

Spasticity, movement disorders

[J. William Lindsey, M.D.](#)

Autoimmune disease

[Sean Savitz, M.D.](#)

Stroke, stem cells

[Suur Biliciler, M.D.](#)

Muscular dystrophy

Department of Ophthalmology and Vision Science

[Steven Massey, Ph.D.](#)

Retina, neuronal circuitry

[Christophe Ribelayga, Ph.D.](#)

Retina, circadian rhythm, visual adaptation, rodent, fish

Department of Pediatrics - Pediatric Neurology

[Mary Kay Koenig, M.D.](#)

Mitochondrial, neurometabolic and neurocutaneous disorders

[Gretchen Von Allmen, M.D.](#)

Pediatric epilepsy

[Pauline Filipek, M.D.](#)

Autistic spectrum disorder

[Hope Northrup, M.D.](#)

Genetics, neural tube disorders, tuberous sclerosis

[Eric Swindell, Ph.D.](#)

Retina development

Department of Psychiatry and Behavioral Sciences

[Joao L. de Quevedo, M.D., Ph.D.](#)

Neurobiological basis of psychiatric disorders

Adel Wassef, M.D.

Cognition, schizophrenia

[Jair Soares, M.D.](#)

Imaging, mood disorders

[Scott Lane, Ph.D.](#)

Substance abuse, aggression

Department of Pediatrics - Children's Learning Institute

[Linda Ewing-Cobbs, Ph.D.](#)

Head trauma and functional neuroimaging

[Susan Landry, Ph.D.](#)

Brain development and prematurity

[Jenifer Juranek, Ph.D.](#)

Neuroimaging