

IMPORTANT: This syllabus form should be submitted to OAA (gsbs_academic_affairs@uth.tmc.edu) a week before the start of each semester.

NOTE to STUDENTS: If you need any accommodations related to attending/enrolling in this course, please contact one of the Graduate School's 504 Coordinators, Cheryl Spitzenberger or Natalie Sirisaengtaksin. We ask that you notify GSBS in advance (preferably at least 3 days before the start of the semester) so we can make appropriate arrangements.

<p>Term and Year: Fall 2023</p> <p>Course Number and Course Title:</p> <p>GS14 1021:Current Topics in the Neurobiology of Disease</p> <p>Credit Hours: 1</p> <p>Meeting Location: McGovern Medical School</p> <p>Building.Room#: B.625</p>	<p>Program Required Course: No</p> <p>Approval Code: No</p> <p>(If yes, the Course Director or the Course Designee will provide the approval code.)</p> <p>Audit Permitted: Yes</p> <p>Classes Begin: August 29, 2023</p> <p>Classes End: December 12, 2023</p> <p>Final Exam Week:</p>
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Class Meeting Schedule

Day	Time
Tuesday	12:00 Noon

<p>Course Director</p> <p>Name and Degree: John Byrne, PhD</p> <p>Title: Professor, June & Virgil Waggoner Chair</p> <p>Department: Neurobiology and Anatomy</p> <p>Institution: UTH</p> <p>Email Address: John.H.Byrne@uth.tmc.edu</p> <p>Contact Number: 713-500-5633</p> <p>Course Co-Director:</p> <p>Name and Degree: John Seymour, PhD</p> <p>Title: Associate Professor</p> <p>Department: Dept. of Neurosurgery</p> <p>Institution: UTH</p> <p>Email Address: John.P.Seymour@uth.tmc.edu</p>	<p>Instructor/s (see attached class schedule)</p> <ol style="list-style-type: none"> <p>Name and Degree</p> <p>Institution:</p> <p>Email Address :</p> <p>Name and Degree</p> <p>Institution:</p> <p>Email Address :</p> <p>Name and Degree</p> <p>Institution:</p> <p>Email Address</p>
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<p>Course Description:</p> <p>This course is an integrated approach to neurological diseases, which includes background information as well as the diagnosis, treatment, and biological mechanisms of the diseases under study. The topic for Fall 2023 will explore the rapidly growing field of “Neuromodulation and Brain-Computer Interfaces (BCI).” This course will provide students with a broad understanding and appreciation for invasive (e.g., electrocorticography (ECoG), stere-electroencephalography (sEEG), local field potential (LFP), deep brain stimulation (DBS) and non-invasive (surface EEG, transcranial magnetic stimulation, transcranial current stimulation) recording and stimulation modalities as they relate to brain mapping, neurological/psychiatric diseases and disorders (e.g., stroke, epilepsy, depression, PTSD) as well as the augmentation and/or restoration of certain functions. Importantly, a discussion of ethical implications as well as the future of these emerging technologies will be threaded throughout and specifically addressed. Lectures will be given by leading experts in the field from UTHealth Houston, Rice University, and Baylor College of Medicine.</p>	
<p>Textbook/Supplemental Reading Materials (if any)</p> <ul style="list-style-type: none"> • When necessary directors may provide additional information for students. 	
<p>Course Objective/s:</p> <p>Upon successful completion of this course, students will gain a broad understanding and appreciation of invasive (e.g., electrocorticography (ECoG), stere-electroencephalography (sEEG), local field potential (LFP), deep brain stimulation (DBS) and non-invasive (surface EEG, transcranial magnetic stimulation, transcranial current stimulation) recording and stimulation modalities as they relate to brain mapping, neurological/psychiatric diseases and disorders (e.g., stroke, epilepsy, depression, PTSD) as well as the augmentation and/or restoration of certain functions.</p>	
<p>Student responsibilities and expectations/Course Requirements:</p> <ul style="list-style-type: none"> • Attendance • Medical and Graduate Students must complete a final research paper on one of the lectures. 	
<p>Grading System: Pass/Fail</p>	
<p>Student Assessment and Grading Criteria : <i>(May include the following:)</i></p>	
Percentage	Description
Participation and/or Attendance (80%)	
Final Paper (20%)	Completion of final essay based on a course lecture. (Postdoctoral fellows are exempt)

CLASS SCHEDULE – Fall 2023

Date	Duration (Hour(s) taught by lecturer)	Lecture Title/Topic	Lecturer/s
Tuesday/ Aug. 29	1	Course Introduction	Seymour, PhD & Webber, PhD
Sept. 5	1	Speech, language, BCI	Nitin Tandon, MD
Sept. 12	1	Language mapping using intracranial stimulation in a clinical context	Yosefa Modiano, PhD
Sept. 19	1	Characterizing depression circuits in the brain using intracranial recordings in human neurosurgery patients	Kelly Bijanki, PhD
Sept. 26	1	Neuromodulation of spinal sensorimotor networks: Electrophysiology and clinical translations	Dimitry Sayenko, MD, PhD
Oct. 3	1	Minimally invasive stimulation to treat depression	Jacob Robinson, PhD
Oct. 10	1	Non-invasive brain stimulation for treatment- resistant depression	Joao de Quevedo, MD, PhD
Oct. 17	1	Combined TMS and EEG: holding a candle to the darkness of mixed brain signals	Nicholas Murphy, PhD
Oct. 24	1	Learning not to fear: where and how in the brain	Mohammad Milad, PhD
Oct. 31	1	Emerging trends in optogenetic manipulation	Fabricio Do Monte, DVM, PhD
Nov. 7	1	Intracranial Neuromodulation in Epilepsy	Sandipan Pati, MD
Nov. 28	1	Ultraflexible, minimal invasive BCI	Chong Xie, PhD
Dec. 12	1	Ethics	Kristin Kostick-Quenet, PhD