

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 the Graduate School's 504 Coordinator, Natalie Sirisaengtaksin, PhD. 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 2025</p> <p>Course Number and Course Title: GS14 1021: Current Topics in the Neurobiology of Disease</p> <p>Credit Hours: 1</p> <p>Prerequisites: None</p> <p>Meeting Location: UTHealth Houston McGovern Medical School</p> <p>Building/Room#: MSB 7.037</p>	<p>Program Required Course: No</p> <p>Approval Code: No</p> <p>Audit Permitted: Yes</p> <p>Classes Begin: August 26, 2025</p> <p>Classes End: December 9, 2025</p> <p>Final Exam Week: N/A</p>
Class Meeting Schedule	
Tuesday	12:00 pm to 1:00 pm
<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>NOTE: Office hours are available by request. Please email me to arrange a time to meet.</p>	<p>Instructors</p> <p>(See attached course schedule)</p>
<p>Course Description:</p> <p>This course is an integrated approach to neurological diseases, which includes background information as well the diagnosis, the treatment, and the biological mechanisms of the diseases under study. The topic for Fall 2025 is "Dementia Prevention and Research." This course will investigate the complex biological, clinical, and societal dimensions of Alzheimer's disease and related dementias. Through a series of lectures, students will explore the cellular foundations of network abnormalities, covering topics such as functional genomics, autophagy, and proteasome dysfunction, along with the roles of the microbiome,</p>	

inflammation, and glial cells in neurodegeneration. The course also adopts a clinical perspective by exploring advanced neuroimaging techniques, emerging therapeutic interventions, and the impact of cerebrovascular health in vascular dementia. The curriculum concludes with a focus on caregiving and the behavioral and psychological symptoms associated of dementia.

Textbook/Supplemental Reading Materials

- When necessary, directors may provide additional information for students.

Course Objective/s:

Upon successful completion of this course, students will have had the opportunity to critically evaluate current research in Alzheimer's disease and related dementias. Students will obtain an in-depth understanding of the underlying mechanisms contributing to neurodegeneration and cognitive decline, as well as explore therapeutic interventions and caregiving strategies.

Student responsibilities and expectations:

Attendance

Completion of final essay based on a course lecture. (Postdoctoral fellows are exempt)

Grading System: Pass/Fail

Student Assessment and Grading Criteria: *(May include the following:)*

Percentage	Description
Final Exam (20 %)	Completion of final essay based on a course lecture. (Postdoctoral fellows are exempt)
Participation and/or Attendance (80 %)	

CLASS SCHEDULE – Fall 2025

Date	Duration (Hour(s) taught by lecturer)	Lecture Topic	Lecturer/s
26-Aug	1	Course Introduction	Jack Byrne, PhD
2-Sept	1	Functional genomics of Alzheimer's disease (AD)	Joshua Shulman, MD, PhD
9-Sept	1	Genetic variations in dementia	Myriam Fornage, PhD
16-Sept	1	Cellular basis of network abnormalities in AD	Keran Ma, PhD
23-Sept	1	Autophagy in neurodegenerative diseases	Andrea Stavoe, PhD

30-Sept	1	The proteasome in AD	Andrew Pickering, PhD
7-Oct	1	Therapeutic interventions in Alzheimer's disease (AD)	Paul Schulz, MD
14-Oct	1	Oral microbiome and systemic inflammation in AD	Neha Parikh, PhD
21-Oct	1	Circuits and Computation: A Neuroscientist's View of the Future of Psychiatry	Joshua Gordon, MD, PhD NRC Distinguished Lecturer
28-Oct	1	Vascular Dementia: Epidemiology, Risk factors, and Prevention	Anjail Sharrief, MD, MPH
4-Nov	1	The role of microglia in neurodegeneration	Long-Jun Wu, PhD
11-Nov	1	Cerebrovascular health and neurodegenerative disorders	Sean Savitz, MD
18 Nov	1	No class SfN Nov 15-19	
25-Nov	1	No class Thanksgiving Week	
2-Dec	1	Neuroimaging of dementia	Joseph Masdeu, MD, PhD
9-Dec	1	Caregiving and the behavioral and psychological symptoms of dementia	Carolyn Pickering, PhD, RN