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.

Term and Year: Spring 2024 **Course Number and Course Title:** **GS14 1141 : Neuroimmunology** **Credit Hour: 1** **Meeting Location: McGovern Medical School** **Building/Room#: MSB B. 621**	**Program Required Course: No** **Approval Code: No** **Audit Permitted: Yes** **Classes Begin: January 16, 2024** **Classes End: March 26, 2024** **Final Exam Week: April 22-26, 2024**

Class Meeting Schedule

Day	Time
Every Tuesday	**2:00-3:45 pm**

Course Director

Name and Degree: **Fudong Liu, MD**

Title: **Associate Professor**

Department: **Neurology**

Institution: **UTH**

Email Address: Fudong.Liu@uth.tmc.edu

Contact Number: **713-500-7038**

Course Co-Director:

Name and Degree: **Jaroslaw Aronowski, PhD**

Title: **Professor**

Department: **Neurology**

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Instructor/s

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Course Description:
The course "Neuroimmunology" combines knowledges from fields of Neuroscience and Immunology. The course covers not only the studies of the nervous system/immune system, but also the immune responses to certain neurological disorders, including Alzheimer's Disease (MD), Multiple Sclerosis (MS), Ischemic/Hemorrhagic Stroke, Traumatic brain injury (TBI), Cerebral aneurysm, Gut-Brain microbiome, etc. Specific immune cells will be discussed including the activation pathways of neutrophils, microglia, T/B cells upon pathogenic stimuli to the nervous system.

Textbook/Supplemental Reading Materials

- Latest published papers about neuroimmunology assigned by instructors.

Course Objective/s:
Upon successful completion of this course, students will better understand the role of various cells and factors involved in the nervous system and the immune system interaction. Specifically, students will be able to appreciate a contribution of immune cells to the pathogenesis of neuroinflammatory diseases and trauma, the molecular pathways that regulate the activation of immune cells and mobilization of inflammatory mediators.

***Specific Learning Objectives*:**

1. Understand the evidence for an autoimmune etiology for MS and discuss the roles of T/B cells in MS.
2. Understand how immune responses affect the outcome of TBI.
3. Understand the commonalities in inflammatory responses observed in several neurodegenerative diseases.
4. Understand the roles of brain-gut axis and microbiome in neuroinflammation.
5. Understand the relationship between cerebral vascular malformation and immune responses.

Student responsibilities and expectations:

Students enrolled in this course will be expected to perform the following activities each week:

1. Read one research article assigned by instructors prior to each class.
2. Write a one-page literature synopsis for each assigned research article (see Course Grading for more detail).
3. Participate in and contribute to course discussions during lecture, review sessions.
4. Attend and participate at the journal club review session.
5. Prepare for and take a final examination based on lecture and some reading material.

Students are expected to complete all assigned reading material (research literature) prior to class. While you may work and discuss all course materials and assignments in groups, all writing assignments must be your own. Plagiarism and failure to properly cite scientific literature and other sources will not be tolerated and are
grounds for dismissal from the course and further GSBS disciplinary action. Cheating or engaging in unethical beha
vior during examinations (quizzes and final) will be grounds for dismissal from the course without credit and further
GSBS disciplinary action.

General structure of each lecture:
Introduction and highlights by the lecturer: 50 minutes;
A break: 10 minutes;
Journal club presentation: 30 minutes;
Discussion of the presented paper: 15 minutes.

Grading Criteria:
Participation, 20%;
Journal Club Presentation, 20%;
Homework, 30%;
Final exam, 30%.

Grading System: Pass/Fail

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

Percentage	Description
Homework (30%)	**One-page synopsis for the assigned paper.**
Quiz (%)	
Presentation (%)	

Midterm Exams (%)	
Final Exam (30%)	**Written one-page response to one question.**
Workshop or Breakout-Session (%)	
Participation and/or Attendance (40%)	Attendance 20%; JC paper presentation 20%.

CLASS SCHEDULE – Spring 2023

Date	Duration (Hour(s) taught by lecturer)	Lecture Topic	Lecturer/s
Jan. 16	1h&45 mins.	**Neuroinflammation and Alzheimer's Disease**	Dr. Rodrigo Morales
Jan. 23	1h&45 mins.	**Neuroinflammation in MS**	Dr. John W. Lindsey
Jan.30	1h&45 mins.	**Brain vascular malformations and immune responses.**	Dr. Eunhee Kim
Feb.6		**No class**	
Feb. 13	1h&45 mins.	**Regulatory immune cells in neuroinflammation**	Dr. Xuefang Ren
Feb. 20	1h&45 mins.	**Neuroinflammation in TBI**	Dr. Rodney M. Ritzel
Feb. 27	1h&45 mins.	**Thromboinflammation in Stroke**	Dr. Devin W. McBride
Mar. 05	1h&45 mins.	**Microbiome and neuroinflammation**	Dr. Bhanu P. Ganesh
Mar. 12	1h&45 mins.	**Neuroinflammation in aneurysmal SAH**	Dr. Yanning Rui
Mar. 19		**Spring break**	
Mar. 26	1h&45 mins.	**Neuro-mucosal immunology in aging and stroke**	Dr. Juneyoung Lee

FL/jal