

Fall 2026 - NEUR 4803 E Syllabus

Special Topics: Neuroplasticity and Neurodegeneration, 3 credit hours

Instructor Information

Instructor	Email
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General Information

Description

This discussion-based course provides students with an advanced application of topics in neuroscience related to neuroplasticity and neurodegeneration. The goal of this course is to provide you with a more sophisticated appreciation of the current perspectives of the biological basis of neuroplasticity and neurodegeneration. The selected topics are associated with a variety of neuropsychological abilities including emotion, plasticity, perception, and cognition. Topics will be further analyzed through group discussions, writing assignments and in-class activities. Students will apply cellular/molecular, systems, and behavioral perspectives to course content. Throughout the term, students will read, analyze, present, and discuss research related to how malleable our nervous system is.

Pre-Requisite: NEUR 2000/2001/2010 Minimum Grade of C

Course Goals and Learning Outcomes

Upon completion of this course, students will be able to:

- Identify and describe the key terminology, concepts, and principles of neuroplasticity and neurodegeneration
- Locate and utilize primary literature and online resources to connect course concepts and analyze background information
- Evaluate the appropriateness of conclusions derived from researchers' empirical articles
- Connect course concepts to real-world neurological case studies
- Apply course concepts and reflection on a month-long Neuroplasticity experiment
- Communicate scientific knowledge in written, graphical, and oral format
- Articulate strengths and limitations of various research designs
- Work collaboratively toward shared discussion goals

Course Materials

Requirements

Required reading:

Syllabus: This syllabus is required reading. This course is a reading, thinking, and discussion course; it is a course about context and fundamental principles more than it is a course about detail. The reading load for this course is heavy and some of the material is difficult. It is necessary for you to do the assigned reading prior to each class meeting.

Journal club articles: The required readings will be available in electronic format on Perusall. These articles will be used to provide background reading and promote discussion for our Journal Club discussions.

Recommended book: *The Man Who Mistook His Wife for a Hat* (optional to purchase). This excellent book by the late Oliver Sacks is a readable and useful resource. It will be used primarily as a book club book to promote discussion. The required readings will be available in electronic format on Perusall, but you are welcome to purchase the book if you'd like to curl up in on the couch to do the readings.

You **MUST** come prepared for class having done the readings. You will get the most out of this course when you participate in our seminar conversations. Being engaged in class will help you earn your class participation grade.

Additional Materials/Resources

The list below presents a few online resources to assist in your understanding of the topics presented:

- <http://www.brainfacts.org/>
- <http://brainu.org/movies>
- <https://www.ted.com/playlists/browse?topics=neuroscience>
- <https://www.khanacademy.org/test-prep/mcat/organ-systems>
- <https://nba.uth.tmc.edu/neuroscience/index.htm>

Course Website and Other Classroom Management Tools

All course assignments, readings, and grades will be posted and submitted via Canvas.

Course Requirements & Grading

Assignment	Weight (Percentage)
Neuroplasticity Assignment Reflection 1	5%
Neuroplasticity Assignment Reflection 2	5%
Neuroplasticity Assignment Reflection 3	5%
Neuroplasticity Assignment Final Reflection	10%
Leading Journal Club Discussion (1x/semester)	20%
Leading Book Club Discussion (2x/semester)	20%
Neuroplasticity Project Presentation	20%
In-class assignments, Submitting Perusall Discussion questions, Participation	15%

Course Delivery

All lectures and discussions will be delivered in-person. This format is to promote student engagement and access to the instructional team.

Description of Graded Components

Perusall Readings: To enhance classroom community and with readings related to Neuroscience, students will respond to recent journal articles, pose thought-provoking questions, and engage with others' comments. More details for these annotations will be posted on Canvas. Students will first practice using Perusall by annotating the syllabus by **the end of the first week**.

Leading Journal Club article discussion (1x/semester): Five students will co-lead an hour-long Journal Article discussion for six class meetings. Papers will be uploaded to Canvas at least one week before the Discussion. Students not leading discussion will submit 2-3 thought-provoking questions on on Perusall by **5pm 48 hours before the Discussion**. These questions will count toward your participation grade. Discussion leaders will use these questions to guide the conversation about the assigned topics. Discussion leaders are encouraged to meet with me to discuss organization of discussion leading.

Leading Book Club discussion (2x/semester): Two groups of three students each will lead a 45 minute-long *The Man Who Mistook His Wife for a Hat* Book Club discussion for 10 class meetings. PDFs of readings from the book will be uploaded to Canvas at least one week before the Discussion. Students not leading discussion will submit 2-3 thought-provoking questions on Perusall by **5pm 48 hours before the Discussion**. These questions will count toward your participation grade. Discussion leaders will use these questions to guide the conversation about

the assigned reading. Discussion leaders are encouraged to meet with the instructional team to discuss organization of Book Club discussion leading. Each student will co-lead Book Club twice.

Reflections on Neuroplasticity Assignment: For this assignment, you are challenged to learn a new skill within one month, apply neuroplasticity concepts, and reflect on the learning process weekly. You will choose a skill you've always wanted to learn but have not yet mastered. You will commit to practicing this skill consistently **every day for one month**, aiming to make measurable progress each week. Reflect on your learning journey and progress through reflections that include discussion of related concepts, citing sources, and graphing your progress, and uploading videos of your progress. All submissions should be at least **2 pages double-spaced**, not including figures. A presentation (see below) will be held at the end of the semester to share your results. More details will be provided on Canvas.

Professional Presentation: A Pecha Kucha presentation will be given at the end of the semester to present your Neuroplasticity Project. This is a special type of slide deck presentation where the slides are only graphics (graphs or pictures), and there are no words (other than titles/labels on the figures). Also, slides are set to automatically advance every 20 seconds. Your task is to give a 2-minute presentation (5 or 6 slides) to the class. A template and rubric will be provided on Canvas.

In-class Assignments: These are problem-based learning activities or additional assignments designed to provide opportunities to practice critical thinking skills of major concepts covered in the course.

Class participation. The assigned readings on Perusall will provide the material for background information and discussion in class. It is expected that each student will contribute meaningfully to our conversations. Participation in these discussions and submitting questions to Discussion Leaders will contribute to a significant portion of the final grade for the course.

Grading Scale

Your final grade will be assigned as a letter grade according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

***Important-** Out of fairness to all students and to adhere with the GT Honor Code, **do not ask your instructor for additional points or “grade rounding”!**

Extra Credit Opportunities To be fair to all students, extra credit must be offered to the entire class and cannot be offered to an individual student. Instructors **will not respond to inquiries for “grade adjustments”** at the end of the semester.

Course Expectations & Guidelines

Academic Integrity, Collaboration, & Group Work

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on

Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Any in-class group activities will require one submission per group.

Communication: This class will communicate via Canvas and SharePoint to your GT email address. Please check your GT email address regularly so you do not miss any updates and announcements. All readings will be posted on Canvas. Assignments will either be uploaded to Canvas. **Please do not submit assignments via email.**

Electronic devices: To promote learning, please keep personal electronic devices packed away during discussions. Special accommodations will be considered, and I am happy to discuss them privately.

Course Engagement: Student engagement in coursework and class activities is essential for learning and student success. Additionally, to comply with federal mandates related to financial aid, the university is required to track attendance and engagement in course activities. Meaningful engagement in a course goes beyond logging into Canvas and may include engaging with learning materials, participating in learning activities, participating in discussion, completing assessments, and interacting with classmates and/or the instructor. You are expected to be actively engaged in the course activities explained in this syllabus, just as the instructor promises to be actively engaged, as well.

Attendance and Participation: Federal Regulations on financial aid require all faculty to document last date of attendance for students who are not participating in classes. If a student has stopped participating in class, then the student's name must be sent to the Dean of Students. If prolonged illness or death in the family occurs, speak with the instructor about withdrawing from the class. In extreme conditions an incomplete may be approved at the discretion of the instructor.

We Respect Everyone

It is our intent that students from all backgrounds (gender, sexuality, religion, disability, age, socioeconomic status, ethnicity, race, and culture) will have an equal opportunity for a supportive learning environment in this course. We appreciate that the experiences our students bring to this class enhances our discussions and understanding of neuroscience. To this end, it is our intent to employ teaching materials and learning activities that are respectful of our student population. We encourage you to reach out to us for constructive conversation on how we may improve the course within the scope of issues we may unknowingly neglect. Additionally, if you have a religious event during scheduled class, let us know via email at least 3 days prior so that we can make the appropriate arrangements for you.

Please keep in mind that many of us might be close to someone with mental illness. Some of our class might be personally managing mental health issues and other concerns as

well. Please help to keep our classroom a safe and respectful atmosphere. Any student who shares personal information with the class has the right to our attention and respect. No student should feel shut down by the words or actions of others in the class and we all have the right to gently remind each other to act and react with grace, tact, politeness and inclusiveness in the face of our differences. Please remember that we are all different and differences are to be celebrated!

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail Dr. Ragan (cragan8@gatech.edu) as soon as possible to set up a time to discuss your learning needs.

Extensions & Late Assignments

Late Work Policy: Students will receive (1) opportunity to submit an outside-of-class assignment up to 24 hours late without penalty. Any additional assignments submitted after the posted deadline will be subject to a 10% grade reduction for every 24 hours it is late. No assignments will be accepted more than 5 days late.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Email and Piazza Policy

All questions about course content should be submitted to Piazza to allow other students who have similar questions to also contribute and learn the answer. Questions about course content to the instructors will not be answered by email. Only email the course instructor if you have questions that are beyond the scope of the course content (e.g., absences).

Campus Resources for Students

Georgia Tech offers a wide variety of campus resources to help students succeed both academically and personally. These include, but are not limited to, the library, The Communication Center, The Center for Academic Success, The Counseling Center and The Division of Student Life, or Women's Resource Center. Click [here](#) for a list of relevant campus resources available to all Georgia Tech students.