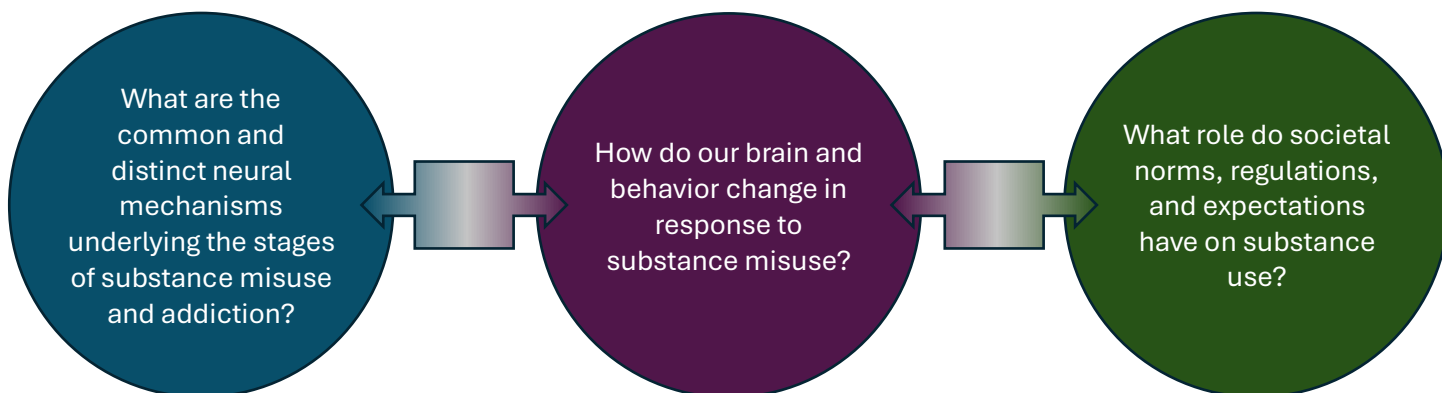


Georgia Institute of Technology
NEUR 4803: Special Topics
Neuroscience of Addiction
Summer 2026

Class times: T/TH 12:30-2:40pm
CRN: 58010
Prerequisites: NEUR 3003 or PSYC 4100

Instructor: Katharine McCann, Ph.D.
Email: katharine.mccann@gatech.edu

Course Description and Learning Objectives



This course will take a deep dive into the neural mechanisms, neuroplasticity, and behavioral changes that occur in addiction. The focus will be on substance-related addiction with an emphasis on the neural pathways, neurochemicals, and brain regions that are involved in each stage of the addiction cycle.

At the end of the semester, you will be able to:

- **Identify** key brain regions, neurochemicals, and pathways contributing to each stage of the addiction cycle
- **Analyze** primary literature and critically **evaluate** and **synthesize** data relating to disordered behaviors and addiction
- **Investigate** disordered behaviors and **formulate** an argument for or against the concept of addiction
- **Apply** concepts from substance misuse and addiction literature to other disordered behaviors and **distinguish** the classification and mechanisms of each
- Effectively **communicate** scientific information in oral and written formats

Course Requirements

Required course materials:

There is no textbook for this course. This syllabus is required reading. Weekly readings will be posted on Canvas and should be read before class so that you are prepared to contribute to the class discussion.

Computer and Internet: A computer and a stable internet connection are required to be able to access course materials and to submit assignments. Please contact me if you need any assistance in accessing the course.

Communication: This class will communicate via Canvas and through your Georgia Tech email address. Please check your GT email address regularly so you do not miss any updates and announcements. **If not emailing directly via Canvas, please indicate your course and section number in the subject line.** I will do my best to reply to your emails within 24 hours during the school week. **To stay organized, I will not accept assignments via email.** I would like for you to have a support system for this course, so please communicate with your classmates and with me early and often.

Canvas and Student Technology Support: This course utilizes Canvas, a virtual learning management system. Canvas is compatible with all browsers and works with your phone. You may consider downloading the app for your phone to receive notifications and alerts for your courses. Verify your email settings are set to forward to your GT email address, and make sure you are receiving emails from the system.

GT Canvas site: <https://canvas.gatech.edu/>

GT Canvas app for students: <https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-is-the-Canvas-Student-app/ta-p/31>

Need Microsoft Office? Get access to the FREE cloud-based version of Office 365 by visiting the GT Office 365 website and using your GT email address.

GT Office 365 Website: <http://portal.office.com>

Need tech help? Contact the Office of Instructional Technology with any technology questions or connect in the Virtual Help Desk.

Office of Instructional Technology website: <https://oit.gatech.edu/>

Contact information: <https://oit.gatech.edu/contact-us>

Course Policies

Attendance Policy: This course is designed around student-led discussions and journal clubs, and therefore active engagement is critical for the success of the course. You are expected to come to class each day prepared to participate and engage with your peers. In-class participation and engagement are calculated into your final grade (see grade table below).

Make-up Policy: Late assignments will lose 10% per day off the final grade and will not be accepted after one week past the due date. For extensive illnesses and emergencies, contact the Office of the Vice President and Dean of Students who can inform and work with your instructors. Make-up assessments will be given only with advance notice and/or official documentation from the Institute or the Dean of Students. <https://studentlife.gatech.edu/request-assistance>

Course Engagement: Student engagement in coursework and class activities is essential for learning and student success. Meaningful engagement in a course goes beyond logging into Canvas and may include engaging with learning materials, participating in learning activities, 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.

Policy on use of generative AI for class work: AI-based assistance, such as ChatGPT or Copilot, is considered unauthorized collaboration in this course when used in lieu of writing and interpreting in your own words. In your assignments, **avoid anything that was not written directly by you**. Including anything you did not write in your assignment without proper citation will be treated as an **academic misconduct** case and will be reported to the Office of Student Integrity. Use any interaction with an AI assistant as a *tool* to promote your learning experience, with your completed submitted product reflecting your interpretation and understanding of the material. <https://www.cc.gatech.edu/news/new-policies-navigate-role-ai-assistants-cs-courses>

Academic Honesty and Integrity: Your instructors take academic integrity very seriously. Cheating, in any form, interferes with your success. As science is collaborative by nature, you are absolutely permitted to discuss ideas, results, and work with other people. However, **all work you submit must be your own and in your own words**. If you turn in another's work as your own, **including AI-generated material**, you should expect a failing grade for the course. Work on individual assignments should be done independently. If you have any questions about anything, please do not hesitate to reach out to me. I am here to help!

GT Academic Honor Code

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. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#). Any student suspected of cheating or plagiarism 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.

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. [The Student-Faculty Expectations](#) articulate some basic expectations 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.

Accommodations for Students with Disabilities

If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment of achievement, please notify me as soon as possible so we can resolve the issue. Students with disabilities should also contact the Office of Disability Services (ODS), whose purpose is to collaborate with students, faculty, and staff to create a campus environment that ensures all students have an equal opportunity to access the Georgia Tech community. ODS can be reached at 404.894.2563, dsinfo@gatech.edu, or <https://disabilityservices.gatech.edu>. Please contact me ahead of time to discuss any issues related to disabilities. I am happy to work with you.

Office of Disability Services:

Smithgall Student Services Building
Email: dsinfo@gatech.edu
Phone: 404-894-2563
Website: <http://disabilityservices.gatech.edu/>

Academic and Personal Support

APA Style resource: <http://owl.english.purdue.edu/owl/resource/560/01/>

Center for Academic Success: <http://success.gatech.edu>

- 1-to-1 tutoring: <https://tutoring.gatech.edu/tutoring/>
- Peer-Led Undergraduate Study (PLUS): <https://tutoring.gatech.edu/plus-sessions/>
- Academic coaching: <https://advising.gatech.edu/academic-coaching>
- Communication Center: <http://www.communicationcenter.gatech.edu>
 - Individualized help with writing and multimedia projects

OMED: <http://www.omed.gatech.edu>

Student Mental Health and Wellbeing: At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](https://studentlife.gatech.edu/services/mental-health-well-being) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being. <https://studentlife.gatech.edu/services/mental-health-well-being>

[National Suicide Prevention Hotline](#) at 988.

The Office of the Dean of Students: <https://studentlife.gatech.edu/about/dean-students>

Smithgall Student Services Building 2nd floor
Phone: 404-894-2565; after-hours: 404-894-2500
You also may request assistance at: <https://mentalhealth.gatech.edu/>

Center for Mental Health Care and Resources: <https://mentalhealth.gatech.edu/>

Smithgall Student Services Building 2nd floor

Phone: 404-894-2575

- Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention.
- Their website also includes links to state and national resources.
- *Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or **contact the counselor on call after hours at 404-894-2575 or GT PD at 404-894-2500.***

Students' Temporary Assistance and Resources (STAR): <https://star.studentlife.gatech.edu/>

- Can assist with interview clothing, food, and housing needs

Stamps Health Services: <https://health.gatech.edu>

740 Ferst Dr NW, Atlanta, GA 30332

Phone: 404-894-1420

- Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition

Belonging and Student Support: <https://belonging.gatech.edu/studentsupport>

Student Engagement and Well-being: <https://students.gatech.edu/>

Veteran's Resource Center: <http://veterans.gatech.edu/>

Georgia Tech Police: 404-894-2500

How to succeed in this class

Science is collaborative, innovative, and also kind of hard sometimes! Your success in this class will be determined by your participation, creativity, determination, and communication. We will work together throughout the semester, and your success will depend on your willingness to engage deeply with the research and work in collaboration with your peers.

	Points
Perusall Readings Top 8 out of 9, 5pts each <i>Individual activity; weekly readings to prepare you to participate in journal club</i>	40
Reflections 2 x 20pts each <i>Individual activity; personal reflections at the beginning and end of the semester</i>	40
Knowledge checks Top 6 out of 7, 15pts each <i>Individual activity; check points on your knowledge from the previous class</i>	90
Treatment Essays 1 st – 25pts 2 nd – 50pts Peer review – (2x25) 50pts 3 rd – 75pts <i>Individual activity; scaffolded essay in which you will propose a novel treatment based on the neural mechanisms discussed in class</i>	200
Annotated Bibliography <i>Group activity with individual contributions; sources collected for your disordered behavior group project</i>	50
Journal Club Presentation <i>Group activity with individual contributions; present chosen paper and lead class discussion</i>	150
Peer Review of final presentation 2 x 25pts each <i>Individual activity; provide feedback to peers on their presentations</i>	50
Final presentation <i>Group activity with individual contributions; group presentation on selected disordered behavior</i>	200
Group Assessment <i>Individual activity; provide feedback on group dynamics</i>	30
Participation and in-class engagement <i>Individual activity; daily attendance and participation in all aspects of the course</i>	150

1000

Grading Scale

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

- A 900 – 1000 points
- B 800 – 899 points
- C 700 – 799 points
- D 600 – 699 points
- F 0 – 599 points

Extra Credit

If an extra credit opportunity arises, I will inform you. **To be fair to all students, I cannot offer extra credit to an individual student that has not been offered to the entire class.**