NEUR 101_003: Introduction to Neuroscience, *Fall 2024*

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Office Hours: Wednesday 1pm – 2pm or by appointment.

Course Overview

This course is intended to be an introduction to the study of the neuroscience for students for all majors. We will explore basic concepts necessary to understand the nervous system including different cell types, their electrical activity, synapses, the function of neurotransmitters, brain development, and diseases. We will discuss how the nervous system is studied and explore the societal implications of neuroscience.

Mason Core: Natural Science Overview, Non-lab

Lectures, activities, and assignments target these 4 learning outcomes:

1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding: a) evolves based on new evidence, and b) differs from personal and cultural beliefs.
2. Recognize the scope and limits of science.
3. Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
4. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information)

Textbook and Materials

No textbook is required. Some material has been adapted from: Larimore, Jennifer L. *Neuroscience Basics: A guide to the brain's involvement in everyday activities.* Elsevier. 2017. ISBN: 0128110163, 978-0128110164 and from Dingman, Marc, *Your Brain, Explained.* "ISBN 978-1-47369-655-6". Open educational resources may be provided from other sources.

Grading and Assessment

Quizzes (~12, drop 2 lowest)	10%	
Activities/Participation	10%	
Neuro-Disorders Project	15%	
3 Exams: 2 midterms and 1 final	65%	(20% each midterm, 25% for final)
Total Grade	**100%**	

Grading Scale

A+	98-100%	B+	88-89%	C+	78-79%	D 60-69%	F 0-59%
A	90-97%	B	80-87%	C	70-77%		

Quizzes and Exams
There will be 12 knowledge-based **quizzes** throughout the semester to ensure learning goals are being met. The 2 lowest quiz grades will be dropped. Most quizzes will be given on paper for the first 15 minutes of the class. *One exception is the quiz for Oct.7 which will be available on Canvas for 15 minutes for a single attempt once opened by the student.* There will be 3 **exams** on your knowledge of the topics covered that will include information from the class lecture slides as well as from discussions, activities and project presentations. The final will be cumulative with a greater emphasis on the most recent classes. There will be a syllabus quiz on Canvas open after this class and available until

Make-up Work
Make-up work including exams and quizzes will be allowed in case of emergency or illness **ONLY** and will require documentation. Please submit a request **BEFORE** the exam/quiz (i.e., on or before the morning of the exam). Activities and participation during class are essential to your learning experience and will be missed if not present.

Communication:
1. We are using the Canvas (lms.gmu.edu) learning management system. Use your Mason credentials to log in and navigate to this class (NEUR101_003).
2. Lecture slides will be posted to Canvas after class. Unfortunately, missed discussions and activities cannot be posted on Canvas but will be included on exams and quizzes, therefore class attendance is paramount to your success.
3. Please contact me via e-mail psincla2@gmu.edu **from your *university account only*** and **include the course name in the subject line and include your full name in the e-mail**.
4. I will use Canvas to communicate about the course and you are responsible for checking announcements. If you need assistance with Canvas settings please reach out for more guidance or resources on navigating Canvas. Not checking announcements will not be an accepted excuse for missing an assignment or exam.

Academic Standards
Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements. Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.

- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, co-authored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is outlined in the university's procedures. Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.

The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Accommodations for Students with Disabilities
Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit https://ds.gmu.edu/ for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor *in advance* of any relevant class meeting, assignment, or exam.

FERPA and Use of GMU Email Addresses for Course Communication
The Family Educational Rights and Privacy Act (FERPA) governs the disclosure of education records for eligible students and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Title IX Resources and Required Reporting
As a part of George Mason University's commitment to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community, the University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities. Accordingly, **all non-confidential employees, including your faculty member, have a legal requirement to report to the Title IX Coordinator, all relevant details obtained directly or indirectly about any incident of Prohibited Conduct** (such as sexual harassment, sexual assault, gender-based stalking, dating/domestic violence). Upon notifying the Title IX Coordinator of possible Prohibited Conduct, the Title IX Coordinator will assess the report and determine if outreach is required. If outreach is required, the individual the report is about (the "Complainant") will receive a communication, likely in the form of an email, offering that person the option to meet with a representative of the Title IX office.

For more information about non-confidential employees, resources, and Prohibited Conduct, please see University Policy 1202: Sexual and Gender-Based Misconduct and Other Forms of Interpersonal Violence. Questions regarding Title IX can be directed to the Title IX Coordinator via email to TitleIX@gmu.edu, by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373.

Student opportunity: If you prefer to speak to someone ***confidentially***, please contact one of Mason's confidential employees in Student Support and Advocacy (SSAC), Counseling and Psychological Services (CAPS), Student Health Services (SHS), and/or the Office of the University Ombudsperson.

Student Services

- Learning Services (learningservices.gmu.edu)
- University Libraries (library.gmu.edu)
- Writing Center (writingcenter.gmu.edu)
- Counseling and Psychological Services (caps.gmu.edu)
- See a longer list of Mason student support services posted on The Stearns Center website.

Add/Drop Deadlines
Deadlines for the Fall 2024 semester can be found on the Mason Academic Calendar page.

Course Schedule

DATE	Lesson	
Aug. 26	Syllabus/Introductions	
Aug. 28	Nervous system overview and organization	Quiz: Syllabus (Canvas)
Sep. 2	Labor Day-University closed	
Sep. 4	Neural cell biology: neuronal and non-neuronal cells	Quiz: Overview
Sep. 9	Neurotransmitters, ions and electrical activity; Synapses	Quiz: Neural cells
Sep. 11	Neurotransmitters, ions and electrical activity; Synapses	
Sep. 16	Development	Quiz: Neurotransmitters
Sep. 18	Development	
Sep. 23	Fear/stress	Quiz: Development
Sep. 25	Fear/stress	
Sep. 30	Learning and memory	Quiz: Fear/stress
Oct. 2	Learning and memory	
Oct. 7	No class	Quiz: Learning/memory (Canvas)
Oct. 9	**Exam**	
Oct. 14	No class (Fall Break)	
Oct. 16	Language	
Oct. 21	Movement	
Oct. 23	Behavior	Quiz: Language, movement
Oct. 28	Circadian rhythms	Quiz: Behavior
Oct. 30	Sleep	
Nov. 4	Sensory systems	Quiz: Circadian rhythms/sleep
Nov. 5	VOTE!!	
Nov. 6	Sensory systems	
Nov. 11	Attention	Quiz: Sensory system
Nov. 13	**Exam**	
Nov. 18	Pain	
Nov. 20	Project presentations	Quiz: Pain
Nov. 25	Project presentations	
Nov. 27	Thanksgiving break (Enjoy!)	
Dec. 2	Methods for studying the brain: models, assays, case studies	
Dec. 4	Evolution	

Dec. 9	Last day of class	Quiz: Methods, evolution
Dec. 16	**Final Exam – cumulative 1:30-4:15**	

NOTE: This schedule is subject to change at any time. You are responsible for all announcements and syllabus modifications posted to Canvas. Check your Mason e-mail and Canvas announcements daily.