Introduction to Neuroscience
NEUR 101, Fall 2021, Meets: W 1:30-4:10PM, Enterprise 274

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Office Hours: Krasnow 233, Wednesday 4:30-5:30PM or by appointment.

Course Overview
This course provides an introduction to the study of the neuroscience for students of all majors. We will explore basic concepts such as cell types, electrical activity, synapses, and neurotransmitters. We will discuss key discoveries about brain development, cognitive function, and disease. We will also explore the implications of neuroscience on society in the context of the modern world.

Mason Core: Natural Science, Non-lab
This is a Natural Science, non-lab Mason Core course. This course aims to enhance your understanding of scientific inquiry by introducing you to the core concepts, tools, and methods of neuroscience as well as the emergent applications of neurotechnology for personal, medical, and social purposes.

Course Format
Attendance is required and participation is highly encouraged. At minimum, please bring your enthusiasm and curiosity to one of the most interesting topics of our times!
Articles, slides, and announcements will be communicated directly via Blackboard : mymason.gmu.edu.

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. Open educational resources will be provided from various sources.

Grading and Assessments

5 random quizzes	25%
5 Core Goal Project	25%
1 Society Project	10%
2 Exams	40%
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: There will be 5 random quizzes throughout the course of the semester administered in class on paper! These quizzes will consist of 5 short answer questions on topics recently covered in the class.

Exams: There will be 2 regular exams and 1 non-cumulative final exam. These exams may consist of multiple choice and T/F.

Make-up Work: Make-up exams may be offered at the discretion of the instructor. Generally, a make-up exam will only be offered in case of emergency or illness and will require documentation. The request for a make-up exam must be submitted by the day of the exam. Make-ups will not be granted for quizzes or other work.

Communication: If you need to contact me, please do so using e-mail **from your university account only**, and **include the course name in the subject line and include your name in the e-mail**. I will use e-mail and Blackboard to communicate with you regarding changes related to the course, syllabus, and other essential information. You are responsible for all announcements posted and sent via Blackboard, e-mail, and in class.

Conduct: Be kind and respectful to your classmates. Disrespectful behavior will lead to a potential deduction of points from the course, and an unhappy me. For a guide to online behavior, see these core rules for Netiquette.

Academic Integrity: Honesty and integrity are issues at the very core of this course and of science as a whole. George Mason has an honor code with clear guidelines for academic integrity. A few of the most important rules that pertain to this course are as follow: 1) All work submitted must be your own should be done individually unless explicitly stated otherwise. You will be encouraged to discuss ideas, collaborate, and brainstorm with your classmates, but actual assignments need to be completed individually. 2) When referencing the work of others (this includes published and non-published work or ideas), full credit must be given through appropriate citations. 3) If you are ever unsure about the rules for an assignment, ask for clarification. Cheating and plagiarism of any form is not tolerated. Plagiarism means using the exact words, opinions, or information from another person without giving the appropriate credit. Any offense will be reposted to the academic integrity office and be dealt with in accordance with university regulations.

Disability Accommodations

If you have a documented learning disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Office of Disability Services (SUB I, Rm. 4205; 993-2474; http://ods.gmu.edu) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Mason Diversity Statement*

George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth. An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected.

** This is an abbreviated statement; full statement is available at http://ctfe.gmu.edu/professional-development/mason-diversity-statement/*

Privacy and E-mail Use

Students must use their MasonLive email account to receive important University information, including communications related to this class. I will not respond to messages sent from or send messages to a non-Mason email address. Student privacy is protected under FERPA (https://registrar.gmu.edu/ferpa/).

Student Services

- Learning Services (learningservices.gmu.edu/keeplearning/)
- 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.

Course Schedule

NOTE: This schedule is subject to change

Week 8/25: Introduction and Group Assignment
Week 9/1: Cells and Development of the Brain
Week 9/8: Levels of Organization in the Nervous System
Week 9/15: No class-work on projects
Week 9/22: No class-work on projects
Week 9/29: Magical Synapses and Electrical Activity/Group Project 1 Presentations
Week 10/6: Exam 1
Week 10/13: Neural Substrates of Stuff (Perception)/Group Project 2 Presentations
Week 10/20: Neural Control of Behavior/Group Project 3 Presentations
Week 10/27: Pathways of Emotion and Addiction/**Written Article Due**
Week 11/3: When things start to go bad (neurodegeneration)/Group Project 4 Presentations
Week 11/10: A light at the end of the tunnel? (neuropharmacology)/Group Project 5 Presentations
Week 11/17: Some neurodisease
Week 12/1: Exam 2

Natural Science Core Learning Oral Presentation Project

You will be divided into groups of 5-7 students. You are expected to work together to come up with a 10 min presentation on the topic. I will meet with each group individually to go over questions and planning.

1. Understand the role of scientific inquiry in investigations of the natural world

Project 1: Choose an important neuroscience related discovery and describe how it has influenced our understanding of biology.

2. Examine how scientific knowledge and understanding changes across time and cultures

Project 2: Pick a topic that involves human mental health or behavior and conduct cross-cultural analysis (compare two different cultural approaches)

3. Recognize the scope and limits of science.

Project 3: Pick a scientific question that remains unanswered. Consider why we have not yet answered it.

4. Identify current trends in the application of science technology to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).

Project 4: Choose a new technology with implications on human health or behavior. Identify some benefits and disadvantages to the technology.

5. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).

Project 5: Identify 5 important neuroscience journals. Summarize how they operate.

Neuroscience and Society Written Project:

The goal of this assignment is to apply your growing knowledge of neuroscience to write about a current problem or social issue. Working individually, pick one of the following topics and write a 2-page (double spaced) magazine style article (imagine you are working for National Geographic). In your article inform the reader on the topic and consider some outstanding issues.
Articles are due on 10/27- send to nkabbani@gmu.edu

- Drugs for mental illness
- Artificial Intelligence
- Genetic testing for disease
- Addiction