Introduction to Neuroscience
NEUR 101: Fall 2022
Asynchronous Online

Instructor: Dr. Ren Guerriero (they/them)
Their email: lguerrie@gmu.edu
Meeting times: TBD
Meeting location: Zoom ID: TBD
Student Hours: Wednesdays 10 am
Office Location: Zoom ID: 514 679 8293

What is this class?

(from the GMU catalog): "This course is for students interested in the science of the brain from its evolutionary origins to its role in health and behavior. We examine systems that make up the brain from neurons to circuits. We explore trends in neuroscience experimentation including neuroimaging, computational neuroscience, and neuropharmacology. Offered by Neuroscience. Limited to three attempts."

This course is a **Natural Science, non-lab Mason Core course**. This means you will:

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
    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).

What will I get out of this neuroscience class?

Our nervous system drives and inspires us, allows us to think and read, sleep and dream, move and groove, and so much more. This course is designed to introduce you to basic neuroscience with a focus on humans and current topics in the field. You will be able to:

1) Describe how the human nervous system is organized from development to adulthood.
2) Understand key mechanisms of brain activity, e.g. action potentials and brain waves.
3) Describe how the brain mediates our daily activities from sleep to eating to remembering.
4) Appreciate how the nervous system controls complex activities such as movement.
5) Understand the basis of key human brain diseases such as Alzheimer's and Parkinson's Disease.
6) Find and interpret various types of scientific literature, distinguish the quality of and relevance of sources.
7) Evaluate current ethical debates in neuroscience.
8) Describe how current technology is used to advance understanding in neuroscience.

What are our responsibilities in this class (Code of Conduct)?

Communication Responsibilities: I will respond to emails within 48-hours during business days (not the weekends). If I am away from my email, I will post an announcement on Blackboard. Emails sent to lguerrie@gmu.edu about the class must come from your GMU email, so I can confirm that you are the one and we can discuss grades and other potentially confidential

topics. Before sending an email, check the syllabus, the discussion board "Questions and Comments", and the GMU on-demand Blackboard videos and Technical requirements.

Student Responsibilities: Students are responsible for completing their own course work independently and earning their grade. Not doing work, or turning it in late will lead to a lower grade (see "I missed an assignment…" section below). Students will need a reliable computer and internet access to complete course content. If you are struggling, you are responsible to reach out to Dr. G or the resources below for help. No plagiarism (as defined by the GMU Student Code of Conduct) is acceptable in this class. Not only does it prevent you from learning, but it will have consequences that follow you. Plagiarism can lead to: a zero on the assignment, a zero in the class, and/or removal from the course.

How will I be graded this class?

We will be using the standard undergraduate scale:

A+	97-100%	B+	87-89%	C+	77-79%	D 60-69%	F 0-59%
A	90-96%	B	80-86%	C	70-76%		

Weekly Discussion Board (10 points per week, x14: 5 for answers, 2.5 for each two responses)– Instead of worksheets or quizzes will we be doing discussion boards. Each week you will have a prompt that relates with the weeks' course content. Discussions will open Monday and close the next Monday, and you are encouraged to check on discussion throughout the week. Answers are due on Thursday, replies to two other students are due Monday at 10:00pm, and afterwards the discussion will be locked.

Weekly Quizzes (10 points each, x13) – Each week's lesson will end with a quiz covering that material. This will be open note, but all answers must be your own and not from the internet or from course material. Quizzes will be timed. These are meant for you to apply your new knowledge to see how much you have learned during the week. Quizzes include a combination of multiple choice, fill-in-the-blank, and short answer.

Neuroscience and Society Project (50 points) – This assignment will challenge you to apply your neuroscience knowledge to examine a current problem or social issue. You will research your topic through primary scientific literature and prepare an informational flyer that defines and examines the problem through the lens of scientific evidence.

Possible problems include:

- Drug and behavioral treatment for mental illness in children
- Animal models of human disease (examples: Alzheimer's disease, schizophrenia)
- Human-machine interface technologies
- Genetic testing for brain disease and/or intelligence

Literature Analysis Project (30 points) - In this project, you will work in groups and your group will be given a potential treatment for a neurodegenerative disease. The treatment may be real or fictitious. You will work with the group to analyze current literature and determine the likelihood that the treatment will work.

How do I do well in this class?

Technology:

Because this is an online asynchronous course, introduction to topics will be done using online materials posted on BlackBoard. There will be readings and videos that you must view. To access the course blackboard site, log in to mymason.gmu.edu and select the Courses tab. Under the course list, select the current semester (Fall 2022) and click the course number for NEUR-101.

Preparation:

This is a 3-credit hour course, which is expected to about 6-9 hours of course work a week. Since this class is asynchronous, you will have to watch all the lectures and view supplemental content on your own time. The class consists of lectures, supplemental material, discussions, and quizzes. Here are some tips:

- Lectures: Every week there will be video; these will be short (under 30 minutes) and include examples, drawings, images, and other helpful tips. I recommend watching the lectures twice, to help you first get familiar with the contents and take broad notes (Here are some note taking tips from the GMU Library). Then look at the discussion assignment and supplemental materials, then come back to watch the lecture again. This second time watching, pay attention to details and make sure you don't have any questions.
- Supplemental material: This is the other content in each topics' folder. This includes articles, videos, and worksheets. Supplemental material is to supplement and help you learn beyond the lecture. View these before doing discussion and your quiz.
- Discussions: These are to help us discuss content and topics we go over class. Make sure you take notes and have thought about your discussion answer before submitting it. When writing responses, use your knowledge from lecture and supplemental material to ask questions and point out if someone is incorrect (but make sure you have the proper evidence to support this claim). For all posts, remember **THINK**: **T**rue, **H**elpful, **I**nspiring further discussion, **N**ecessary (on topic), and **K**ind.
- Quizzes: After completing everything above, you can now take your quiz for the week. Make sure your notes are organized (this is an open note quiz) since you have limited time to answer the questions.

I missed an assignment or a discussion, what do I do?

Life is unpredictable and illness (both physical and mental) should be taken seriously. If you know you will not get an assignment in on time, email Dr. Guerriero. Holidays, illnesses, and university sanctioned events likely count as an excused absence, but only if you notify Dr. Guerriero either before the event. If the article doesn't make sense to you, email Dr. Guerriero. If the slides are confusing, email Dr. Guerriero.

Missed Assignments

- "Life Happens Pass" – For one written assignment this semester you can get an automatic 48-hour extension on the due date, no questions asked. **You must inform Dr. Guerriero in writing (email) to get this pass.**
- All other missed assignments will get a 20% deduction. It is to your benefit to turn in assignments late. Most of the points are better than no points!
- All late work needs to be turned in by the final quiz day. Any work turned in later will not be accepted for credit.

I'm struggling in this class. How do I get help?

- I don't understand the class material, assignments, my grades – email Dr. Guerriero. When emailing me, you have to use your gmu.edu email account or I cannot verify that the email came directly from you.

- I'm stressed, anxious, angry, or mentally unwell – Counseling and Psychological Services have drop-in hours or virtual services, including a text line, online chat, and video chats. If its outside business hours, they have an after-hours crisis counselor (call 703-993-2380 and selection option 1).
- I need help with time management, note taking, or other study skills – Talk to Dr. Guerriero or reach out to Learning Services for a personalized appointment and online tools.
- I'm struggling with social issues that impact my identity, my culture, or me personally – College and higher education is inherently exclusionary, racist, sexist, and classist, and I'm committed to helping change that. Mason is also committed to this, with lots of resources:
    - Center for Culture, Equity, and Empowerment (includes a bias incident reporting form)
    - First-Gen+ Center (resources for first-generation, undocumented, refugee, and limited income students)
    - LGBTQ+ Resources Center (including crisis, community, and gender transition resources)
    - Student Support and Advocacy Center (resources for financial help, sexual and interpersonal violence support, and drug/eating disorder recovery)

- **I need class accommodations for a disability, illness, or other reason** – First talk to Disability Services office. They will meet with you virtually and help you with your individual needs. We can only activate your accommodations after you talk with Disability Services. Then talk to Dr. Guerriero about this class; they are happy to help you with what you need.