

**Seminar in Neuroscience:
Neurobiology of Mental Disorders**

NEUR 411-001

Spring 2026

Instructor: Dr. Jennifer Brielmaier (Sontag)

E-mail address: jbrielma@gmu.edu

Class time: Tues 10:30 am -1:10 pm

Office phone #: 703-993-1469

Class location: Horizon Hall 1011

Office location: DK 2044

Office hours: Mon 3-4 pm (Zoom) & by appt

Appointment scheduling link: <https://brielmaiersontag.youcanbook.me/>

Zoom link for office hours: <https://gmu.zoom.us/j/8641621768>

Grading TA and email: Bahar Shahraki fshahrak@gmu.edu

Course Description:

The WHO estimates that about 1 in every 8 people in the world live with a diagnosable mental disorder. The primary goal of this course is to provide advanced undergraduate students an opportunity to explore the biological bases of the more common disorders including major depression, anxiety, bipolar disorder, schizophrenia, and substance abuse disorder. We will explore three major themes: 1) the role of stress in psychopathology (namely depression and anxiety disorders); 2) the neurobiology of schizophrenia; and 3) neuroadaptations in substance abuse disorder. Emphasis will be placed on current strategies used to investigate the pathophysiology and treatment of these disorders, including human imaging and postmortem tissue studies, animal and in vitro models, and genetic approaches.

Course Format:

Class meetings will consist of a combination of lectures, student-led presentations of journal articles, and scientific writing activities. This course is designed to develop your skills in reading, analyzing, and interpreting scientific data, while emphasizing practical scientific writing and presentation skills.

This course is part of the Mason Core and fulfills requirements for Writing Intensive (WI) in the Neuroscience major.

Upon completing a Writing Intensive Course, students will be able to:

1. Use informal or formal writing in ways that deepen their awareness of the field of study and its subject matter (Writing to Learn).
2. Compose one or more written genres specific to the field of study in order to communicate key ideas tailored to specific audiences and purposes; genres may be academic, public, or professional (Writing to Communicate).
3. Draft and revise written works based on feedback they receive from instructors and peers, using strategies appropriate to the genre, audience, and purpose (Writing as a Process).

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Writing intensive courses are required to assign a minimum of 3500 words. This course meets and exceeds this requirement through the 300-word journal entries, the 2500-word final research proposal, and an optional 500-word press release. The research proposal will be completed through a draft/feedback/revision process as described in the Tentative Schedule.

Course Modality:

This is an in-person, face-to-face course. There will be no concurrent instruction, meaning the class will not be streamed online, and students will not be able to attend virtually. If you are unable to come to class due to illness or any other reason, please see the policy under Attendance and Makeup Policies below.

Textbook: None required

Required Readings: Will be available on Canvas

Optional Resources:

- Harrington, M (2011). *The Design of Experiments in Neuroscience, 2nd Edition*. Sage Publications. ISBN-13: 978141297432
- Zinsser, W. (2016). *On Writing Well: The Classic Guide to Writing Nonfiction, 30th Anniversary Edition*. HarperCollins. ISBN-13: 9780060891541
- Strunk, W., & White, E.B. (2000). *The Elements of Style, 4th Edition*. New York: Longman.

Learning Goals:

By the end of this course, you should be able to...

- Interpret and analyze primary scientific literature
- Think critically about science and question scientific findings
- Clearly present, explain, and facilitate discussions about scientific data to your peers
- Describe the symptoms and neurobiological bases of specific mental disorders
- Describe methods and models used in neuroscience and mental disorders research
- Apply the basic principles of research methods including literature reviewing, research ethics, hypothesis formulation, experimental design, and discussion of expected findings
- Apply the principles of scientific writing to written assignments
- Communicate scientific ideas to multiple audiences
- Effectively respond to feedback and make changes in writing

Assessments and Grading:

There are no exams in this course. You will be assessed throughout the course based on a combination of writing assignments, discussion leading, and participation.

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Assignment	Points
Journal Entries	96
Discussion Leading	35
Research Topic and Key References	6
Proposal: Background/Introduction	32
Proposal: Research Plan	16
Revised Research Proposal	60
In-Class Participation	30
Total	275

Grades will be assigned based on the following scale:

A+ 97% or above	B+ 87-89%	C+ 77-79%	D 60-69%
A 93-96%	B 83-86%	C 73-76%	F 59% & below
A- 90-92%	B- 80-82%	C- 70-72%	

Assignments:

- **Discussion Leading:** You will work in pairs or small groups to lead a detailed presentation and discussion of a primary journal article. The goal of this assignment is to improve your ability to communicate, evaluate, and question the scientific findings of others. The primary journal article will be assigned to you. Additional details will be provided. Your discussion leading will be assessed using a 24-point grading rubric.
- **Journal Entries:** Before each journal article discussion, you will write a journal entry (max 500 words) about the assigned article. The goal of these entries is to prepare you for class discussions and to get comfortable reading and critically analyzing original research. Entries will be written in response to research articles that will be discussed that day. Entries will be submitted in Canvas and graded with constructive feedback given. Entries are due 1 hour before the beginning of the class meeting in which the article will be discussed.

You will not write a journal entry for the article on which you will lead the class discussion, and you can miss one journal entry without penalty. This means that a total of 8 journal entries count toward your final grade for a total of 96 possible points. Late journal entries will be subject to a 3 point penalty, starting at class time. 3 more points will be deducted for each additional day late. Journal entries submitted more than 4 days after the deadline will thus receive a zero. Late entries are likely to be graded on a delayed schedule.

- **Research Proposal:** This assignment is designed to help you learn how scientific research questions are developed, justified using existing evidence and theory, and translated into a feasible study design. The proposal will be loosely based on a National

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Science Foundation (NSF) grant proposal with the following sections: Introduction/Background (1000 words), Research Questions/Hypotheses and Plan (1000 words, and Expected Outcomes/Significance (500 words). Guidelines for each proposal section will be provided and discussed in class. Students will turn in several assignments that build toward the final proposal (see Schedule) and are encouraged to meet with me during the proposal development process as needed. The assignments related to the proposal are worth a total of 114 points (see grading breakdown above), just over 40% of your final grade. The due dates for each assignment can be found in the schedule below and on Canvas. Our final class meeting will be a peer review session where you will give and receive two peer reviews so you can incorporate the feedback into your revised proposal.

- **Participation:** In-class participation is essential for your learning and success in this seminar course. Participation points are earned by *actively participating* in class discussions, asking questions during lectures, and/or completing any activities assigned during class. For article discussions in particular, your contributions to the discussion (questions or comments) must reflect that you have carefully read the article being discussed.

Your participation is not scored on the first day of class; nor is it scored on the day you lead an article discussion as this is factored into your discussion leading grade. You can miss two class meetings without penalty. This means you can earn a maximum of 30 total participation points throughout the semester (0-3 points x 10 class meetings). Participation points cannot be made up outside of class, even if you tell me in advance that you will be absent. All students' participation points will be capped at 30; in other words, there is no extra credit for attending all class meetings.

- **OPTIONAL Assignment – Press Release:** This is an optional 12-point assignment that can be used to replace a missing journal entry, make up for missing class participation points, or otherwise boost your points total. If you choose to complete it, you will write a 500-word press release in the style of a [NeuroscienceNews.com](https://www.neurosciencenews.com) article where you summarize and explain the significance of a recent (within 5 years) empirical research article for a lay audience. Assignment guidelines will be available on Canvas. **Each student may only complete ONE press release for credit.** Your notes/annotations on the article must be submitted along with your press release.

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The following rubric will be used to determine each student's participation score each week:

Excellent (3)	Average (2)	Poor (0-1)
Arrives on time and preparation before class is very evident. Participation is active and effective (e.g. contributing to small group and whole class discussion, asking and answering questions, taking a leadership role). Contributions reflect a careful reading of the assigned article.	Preparation is somewhat evident. There is some participation but also a fair amount of passive listening. Contributions reflect a surface level reading of the article. (This is the maximum score for anyone who arrives 10-20 minutes late or engages in any off-task behavior during class.)	Did not attend class or was more than 20 minutes late without a valid reason; or was present but showed no evidence of participation; or was disruptive/disrespectful, and/or engaged in repeated off-task behavior.

Commitment to an inclusive learning environment:

Your experience in this class is important to me. It is my intent that students from all diverse backgrounds, perspectives and circumstances be well served by this course and that students' learning needs are addressed. If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of your achievement, please notify me as soon as possible and/or contact the Office of Disability Services. If you are seeking accommodations for this class, please first visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. I cannot give extensions, allow makeup/alternative work, waive the attendance/participation requirement, or make any other types of adjustments that are not specifically covered by an accommodations letter for the current semester. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474

Attendance and Late Work/Makeup Work Policies:

Students are responsible for checking the GMU Academic Calendar and making sure they are available to attend class and complete coursework throughout the entire semester.

Policies for missed classes and late work are as follows:

- Two class meetings can be missed without penalty; therefore, participation points from missed classes cannot be made up.
- Late journal entries will incur a 3 point deduction, starting at class time. An additional 3 points will be deducted for each additional day late. Entries turned in more than 4 days late will receive a zero.
- Other written assignments will incur a deduction of 10% per day late, starting 24 hours after the deadline. Late work will not be accepted more than 1 week after the original due date. This means you will not get feedback before the revised proposal is due.

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- The optional press release assignment is the mechanism by which you can try to make up lost points (up to 12 pts). Your submission **MUST** be received by April 7th in order to earn full credit. Late submissions will receive a maximum of half credit (6 pts). Requests to complete any other form of alternative/additional work will not be considered.
- **No late work will be accepted after May 12th.**

Academic Standards:

Students are expected to follow the university's Academic Standards at all times in this course. The standards are upheld in the principles listed below. For more information, please see the [Academic Standards website](#) and the [Academic Standards Code](#).

- **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.

Generative AI policy:

Generative AI tools such as ChatGPT, Copilot, Claude, etc. can both enhance and interfere with learning and professional development. Two very important things to keep in mind are that 1) when used for research-related tasks, generative AI tools can produce fabricated sources and 2) outsourcing the writing process to AI denies you the opportunity to develop your own scholarly thinking and understanding. As noted by Dr. Whitney Kosters, *"Writing is not just about producing a polished paper at the end. It is about the messy, frustrating, rewarding process of thinking, wrestling with ideas, finding clarity, and putting your voice on the page. That process is what transforms you. It builds grit, creativity, problem-solving, and confidence. And those skills are what carry over when you're in a job interview, in a meeting, or explaining a complex idea to someone in real time. AI can't do that for you."*

The AI policy for this course is as follows:

- Generative AI tools may be used as a **resource** to brainstorm ideas, check grammar, suggest possible directions, and receive feedback on clarity and organization.
- Generative AI may NOT be used to **replace** your own writing. Direct copying of sentences, paragraphs, or sections from AI is considered plagiarism and will be treated as a violation of the university's [Academic Standards](#) and subject to sanctions as laid out in the [Academic Code](#).

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- **Transparency requirement:** If you use AI at any stage, you must disclose the tool and type of use. A simple note will suffice (e.g., “I used ChatGPT to refine my topic” or “I used Grammarly to check grammar”).
- You will be required to submit your notes/outline for the writing assignments in this course, to show your writing process and prove that the work is truly your own.
- I reserve the right to request a meeting with you at any time to ask about your writing process, before assigning a grade for your work.

Violations of the course policy, including the transparency requirement, may result in a zero for the relevant assignment or section of an assignment, and may be referred to the Academic Standards office.

Inclement weather/class cancellation policy:

Following a Mason Alert announcing an inclement weather campus closure, please be sure to check your email and/or our course Canvas page to see what our class plans will be. If an in person class meeting needs to be canceled for weather or another reason, class *may* be held online via Zoom. If that is not possible, asynchronous work may be assigned. Any adjustments to the class schedule will be clearly indicated by a revised syllabus and an announcement on Canvas/email sent to students.

Technology statement:

Required knowledge of technology for this course includes the ability to access course materials posted on Canvas and/or sent via email to your GMU address.

Policy on technology in the classroom: Laptops and tablets are permitted for class related activities. The use of cell phones is discouraged. Multitasking during class meetings will negatively affect the participation part of your grade.

GMU Common Course Policies:

Please visit [this link](#) to read through GMU's Common Course Policies, including the University's Academic Standards, Accommodations for Students with Disabilities, FERPA and Use of GMU Email Addresses for Course Communication, and Title IX Resources and Required Reporting. Students are expected to visit this link and read through all policies carefully.

Religious Holidays:

A list of religious holidays is available on the University Life Calendar page. See the [Religious Holiday Calendar](#). Any student whose religious observance conflicts with a scheduled course activity must contact me at least 2 weeks in advance of the conflict date in order to make alternative arrangements.

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Resources for Students:

CHSS PASS

<https://academicaffairs.chss.gmu.edu/undergraduate-students/pass-program>

University Writing Center

<http://masononline.gmu.edu/student-resources/writingcenter>

University Libraries

<http://library.gmu.edu/>

Center for Community Mental
Health

<http://ccmh.gmu.edu/>

University Career Services

<http://careers.gmu.edu/>

Student Health Services

<http://shs.gmu.edu/>

Student Support and Advocacy

<https://ssac.gmu.edu/>

Add/Drop Deadlines:

Last day to add Jan 27

Last day to drop with 100% tuition refund Feb 3

Last day to drop with 50% tuition refund Feb 10

Unrestricted withdrawal period (100% tuition liability) Feb 11-24

Course Content and Mental Health:

This course offers the opportunity to explore our current understanding and new ideas about the biology of mental disorders. I value the contributions of all members of the class, and realize that some members of the classroom community may have personal experience with one or more of the disorders to be discussed. I expect that classroom discussions be conducted with respect for all persons at all times. Please be aware of the content and quantity of your comments in class to assist in creating an environment where students feel respected. The use of language, written materials or multimedia that degrades individuals suffering from mental disorders will not be tolerated, and participation or discussion leading points will be deducted accordingly. If you are feeling uncomfortable with or distressed by class activities or discussion content, please come and talk to me. If you are struggling with your own mental health, I encourage you to take advantage of the resources offered at Mason, to which I have provided links below.

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Tentative Schedule:

The specific names of the readings will be added to the schedule and to Canvas. Please check the syllabus and Canvas frequently.

Date	Topic	Assignments Due (1 hour <u>before class</u> on Canvas)
Week 1 Jan 20	Course Introduction Lecture: Writing in Neuroscience/ Scientific Writing Principles Activity: Editing and Simplifying Writing	Read through the syllabus carefully
Week 2 Jan 27	Journal Entry Guidelines Discussion Leading Guidelines Lecture: Psychiatric Disorders Overview/Depression and Anxiety Discussion: Sheline et al 1996	Read over Journal Entry and Discussion Leading Guidelines Watch “How to Read and Annotate a Scientific Journal Article” (in Writing Resources module) Read Sheline et al 1996
Week 3 Feb 3	Discussion: Surget et al 2011 Press Release and Research Proposal Guidelines	Review Plagiarism & Citation Material Take Plagiarism & Citation Quiz Read Surget et al 2011 Complete Journal Entry 1 Read over Press Release and Research Proposal Guidelines
Week 4 Feb 10	Discussion: Carreno et al 2016 Lecture/Activity: Choosing a Topic/Locating and Organizing Sources	Read Carreno et al 2016 Complete Journal Entry 2 Download Zotero and read Quick Start Guide

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<p>Week 12 Apr 7</p>	<p>Discussion: Carmack et al 2022</p> <p>Lecture/Activity: Proposal Writing – Research Plan</p> <p>Vote on Student Choice Lecture Topic</p>	<p>Last Day to Submit Press Release (OPTIONAL)</p> <p>Read Carmack et al 2022 Complete Journal Entry 9</p> <p>Re-read Research Proposal Guidelines</p>
<p>Week 13 Apr 14</p>	<p>Discussion: Tanabe et al 2009</p> <p>Lecture: Proposal Writing – Expected Outcomes</p>	<p>Submit Research Plan Worksheet</p> <p>Read Tanabe et al 2009 Complete Journal Entry 10</p> <p>Re-read Research Proposal Guidelines</p>
<p>Week 14 Apr 21</p>	<p>Student Choice Lecture</p> <p>Lecture: Peer Review Guidelines</p>	<p>Reading on Student Choice Topic</p>
<p>Week 15 Apr 28</p>	<p>Activity: Research Proposal Peer Reviews</p>	<p>Submit Final Proposal for Peer Review</p>
<p>Week 16 May 5</p>	<p>NO CLASS (Final Exam Period) Revised Proposal Due on Canvas 11:59 pm</p>	