

NEUR 335 – Molecular, Developmental, and Systems Neuroscience  
Fall 2025; Section 004

Instructor: Dr. Sarojini Attili

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Meeting time: Tue 10:30-1:10 pm EST

Meeting location: Thompson Hall; 2021

Office Hours: Tuesdays 1:30 pm to 2:30 pm at Krasnow Building, Room 254 or by appointment

Course Information:

This course is one of the required Neuroscience courses for majors. Developmental neuroscience is the study of the cellular and molecular events during embryonic development of the nervous system. We will cover patterning of the nervous system, cell differentiation, axon guidance, synapse formation, and neural death. Systems neuroscience involves the study of neural circuits, organized into sensory and motor systems, whose activity gives rise to complex functions. For each of these systems, pathways of information flow, information processed at each level, overall function, and consequences of injury/damage will be discussed. Students are also expected to become familiar with the scientific methods used to tackle questions in developmental/systems neuroscience as well as current questions and/or controversies in the field.

Required Textbook:

Purves, D., et al. (2017) *Neuroscience, 7th Edition*. Sinauer Associates. ISBN: 9780197616246

Technological Requirements: Access to Canvas, email and an internet browser (for reading, researching and taking tests).

Grading Scale:

|            |           |           |          |         |
|------------|-----------|-----------|----------|---------|
| A+ 97-100% | B+ 87-89% | C+ 77-79% | D 60-69% | F 0-59% |
| A 93-96%   | B 83-86%  | C 73-76%  |          |         |
| A- 90-92%  | B- 80-82% | C- 70-72% |          |         |

Grade Breakdown:

|                               |     |
|-------------------------------|-----|
| 10 Quizzes (5 points each)    | 50  |
| 5 Activities (10 points each) | 50  |
| 1 Written Report              | 40  |
| Attendance                    | 10  |
| Exams (3 @ 50 points each)    | 150 |
| Total                         | 300 |

Chapter Quizzes: Students will take an online quiz (via Canvas) after attending each lecture before the assigned due date. All quiz questions are multiple-choice and cover topics that will appear on exams. Quizzes are open book/note but there is a time limit. You may only take each

quiz once. There will be a total of 11-chapter quizzes, and your lowest quiz grade will be dropped.

Activities: There will be a total of 6 activities, and your lowest activity grade will be dropped.

News & Views Report: Students will research and write a 1-2 page "News & Views" style summary of a primary research paper. Sample reports and guidelines will be available on Canvas. Reports must be submitted via Canvas by the assigned due date.

Attendance: There are a total of 12 lectures in the semester. You will receive 1 point for attending each lecture on time (by 10:30 am). You can earn up to 10 attendance points (which means you will be excused for being absent for two lectures). You will not receive points if you are late to class.

Exams: There will be a total of three non-cumulative exams consisting of multiple choice, fill in the blank, and/or short answer questions. Exams will be taken in class. There will also be an OPTIONAL cumulative final exam that can be used to replace a low score on Exam 1, 2 or 3. Exams will be timed. There will be no make-ups allowed for missed exams. Contact the instructor in the first two weeks of the semester if you have accommodations that allow for extra time and review the 'Disability Accommodations' section below.

### **Course Calendar**

Last Day to Add – Sep 2

Last Day to Drop – Sep 8 (100% refund), Sep 16 (50% refund)

| Date               | Topic                                | Reading Material | Student submissions (Due on the Sundays following classes) |
|--------------------|--------------------------------------|------------------|------------------------------------------------------------|
| Lecture 1 – Aug 26 | Course introduction & Basic concepts |                  |                                                            |
| Lecture 2 – Sep 2  | Early Brain Development              | Purves Ch 22     | Quiz 1                                                     |
| Lecture 3 – Sep 9  | Construction of Neural Circuits      | Purves Ch 23     | Quiz 2                                                     |
| Lecture 4 – Sep 16 | Experience-Dependent Plasticity      | Purves Ch 24     | Quiz 3                                                     |
| Sep 23 – Exam 1    |                                      |                  |                                                            |
| Lecture 6 – Sep 30 | Vision & Central Visual Pathways     | Purves Ch 9      | Quiz 4                                                     |
| Lecture 7 – Oct 7  | Auditory System                      | Purves Ch 10     | Quiz 5                                                     |
| Lecture 8 – Oct 14 | Chemical Senses                      | Purves Ch 14, 15 | Quiz 6                                                     |
| Lecture 9 – Oct 21 | Somatosensory System                 | Purves Ch 12     | Quiz 7                                                     |

| Oct 28 – Exam 2     |                         |              |                                         |
|---------------------|-------------------------|--------------|-----------------------------------------|
| Nov 4               | Election Day – No Class |              |                                         |
| Lecture 12 – Nov 11 | Lower Motor Neurons     | Purves Ch 16 | Quiz 8                                  |
| Lecture 13 – Nov 18 | Upper Motor Neurons     | Purves Ch 17 | Quiz 9                                  |
| Lecture 14 – Nov 25 | Basal Ganglia           | Purves Ch 18 | Quiz 10, Written Report                 |
| Lecture 15 – Dec 2  | Cerebellum              | Purves Ch 19 | Quiz 11                                 |
| Dec 9               | Reading Day – No Class  |              |                                         |
| Dec 16              | Exam 3                  |              | Optional Cumulative Final Exam - Online |

How do I do well in this class?

- This course relies heavily on material presented in the book. You are expected to read the chapters and complete the activities assigned.
- I recommend skimming the chapter before we talk about them in class, and then reading again after lecture and when doing classroom activities.
- Also, communication is key to doing well in this course and active participation is expected.

Student responsibilities:

- Attend all sessions & participate in discussions.
- Be respectful to others, ask questions, and don't interrupt.
- Communicate about missing class/assignments with the instructor.
- Read the chapter before coming to class.
- Limit distractions in class including side conversations, phone use, and computer/tablet use.
- Seek help if you are struggling.

**Class communication:** The instructor reserves the right to make any changes in the course he determines academically advisable. Changes will be announced in class and by *email solely through the students Mason account*. It is the student's responsibility to keep up with any changed policies.

**Mandatory Attendance:** Students are expected to attend class on time and participate in all discussions and activities for the whole duration of each lecture. **There will be no make-up quizzes/exams.** Because the lowest grade will be dropped, chapter quizzes cannot be made up under any circumstances. Because the lowest exam can be replaced with the optional exam, make-ups are not allowed. Class participation points cannot be made up outside of the

classroom. Permission to postpone work will only be given for very acute and important reasons, with documentation and at my discretion with a penalty.

**Late Work:** Unless prior arrangements are made, late work will incur a deduction of 20% and will not be accepted more than two weeks after the due date. No late work will be accepted after Dec 2nd. Late exams and exam extensions are not accepted except in cases of emergency or illness. It is imperative that you contact me as soon as possible regarding any issues that may affect your ability to complete assignments.

**Writing Center:** George Mason University provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) for supporting students as they work to construct and share knowledge through writing. See [writingcenter.gmu.edu](http://writingcenter.gmu.edu)

**Academic Integrity:** George Mason has an honor code with clear guidelines for academic integrity. Honesty expectation and requirement are taken very seriously, and breaches of this trust are treated gravely. Students must be responsible for their own work. When in doubt (of any kind) please ask for guidance and clarification. Cheating of any form is not tolerated. Students and faculty must take on the responsibility of dealing explicitly with violations.

**Professional disposition:** Students are expected to exhibit professional behavior at all times.

**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; [ods.gmu.edu](http://ods.gmu.edu)) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs. (Please talk to the Disability Services office first; they will meet with you and help you with your individual needs. We can only activate your accommodation after you talk with Disability Services. Then talk to the instructor.)

**AI (Artificial Intelligence) Tools Policy:**

AI tools such as ChatGPT, Gemini, or similar platforms may be used to assist with research and editing documents for clarity and language. However, students must not use these tools to complete assignments or produce work on their behalf. All submitted work must be original and created by the student, with AI tools limited to the specified purposes of research support and language refinement. Please follow GMU AI guidelines if you choose to use AI tools for support with your coursework.

**Counseling and Psychological Services:** George Mason University has a staff of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops, and outreach programs) to enhance students' personal experience and academic performance. See [caps.gmu.edu](http://caps.gmu.edu)

**COVID Policies:** All students, instructors, and TAs are required to follow the university's public health and safety precautions and procedures outlined on the university Safe Return to Campus webpage (<https://www2.gmu.edu/safe-return-campus>). Similarly, all students, instructors, and TAs in face-to-face and hybrid courses must also complete the Mason COVID Health Check

daily, seven days a week. The COVID Health Check system uses a color code system and students will receive either a Green, Yellow, or Red email response. Only students, instructors, and TAs who receive a “green” notification are permitted to attend courses with a face-to-face component. If you suspect that you are sick or have been directed to self-isolate, please quarantine or get testing. Faculty are allowed to ask you to show them that you have received a Green email and are thereby permitted to be in class.

**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/>