

NEU 301: Introduction to Neuroscience I

Section 001 and Section 002, Fall 2025

3 credits

SECTION INFORMATION:

Section	Meeting Day and Time	Location
001	Wednesday 12:40-1:30pm	McDonel Hall C107
002	Wednesday 11:30am-12:20pm	McDonel Hall C107

INSTRUCTOR INFORMATION

Valerie Hedges, Ph.D. (She/her/hers)

3176 BPS

Office hours: weekly and by appointment- held over Zoom

hedgesva@msu.edu

About me! I teach undergraduate neuroscience courses (NEU 301 and NEU 302) here at MSU. I earned my Ph.D. in neuroscience from the University of Minnesota in 2011, where I studied the molecular mechanisms behind sexual reward processing. After that, I did postdoctoral research exploring how steroid hormones affect brain function. Before coming to MSU, I spent three years teaching at Northern Michigan University, where I also ran my own research lab. Over time, I realized my favorite part of the job was teaching, whether it was showing students how to mount brain sections on slides or explaining how G-protein coupled receptors work. That brought me here to MSU, where my role is fully focused on teaching. I love helping students see how neuroscience connects to their other courses and the real world.

Outside the classroom, I co-chair MSU's neuroscience outreach program because I'm passionate about bringing neuroscience into the community and getting kids excited for science in fun ways. I'm also the adviser for the MSU Neuroscience Club. Feel free to ask the teaching team if you want to learn more about joining (they are all on the e-board!) In my free time, I enjoy hanging out with my family, crocheting, reading, cross stitching, and re-watching my favorite shows over and over again. Lately, I've been getting into bird identification and watching (not exactly a full birder yet), but I'm trying to learn more!

PREREQUISITES: (BS 161 or BS 181H or LB 145) and (BS 162 or BS 182H or LB 144)

COURSE DESCRIPTION:

This is the first semester of a two-part introductory neuroscience sequence. NEU301 covers cellular and systems neuroscience, including neurophysiology, chemical signaling, and central/peripheral nervous system anatomy. Topics also include systems neuroscience, covering vision, hearing, smell, and taste.

COURSE PLATFORM/STRUCTURE:

NEU 301 will be offered in two sections as a hybrid/hyflex course, with weekly in-person or Zoom meetings on Wednesdays.

Content delivered through:

- 1) Recorded content videos (D2L)- Most content available for self-paced learning
- 2) Live instruction on Wednesdays (Also synchronous Zoom option)
- 3) In-class assignments- Interactive activities facilitated by teaching and learning assistants

- 4) Readings from the free online textbook

Assignments:

- 1) Weekly D2L quizzes
- 2) Weekly in-class assignments
- 3) Exams (5 over the semester)
- 4) Reflections (for those wanting to complete Exam Corrections)

MY COURSE PHILOSOPHY:

I love teaching introductory neuroscience because I get to share the excitement of discovery with you! The nervous system is fascinating, and understanding its function deepens your knowledge of both the body and yourself. My goal is for you to develop an appreciation for neuroscience and its many subfields.

To succeed in this course, I encourage you to:

- Stay on top of weekly deadlines
- Read assigned materials before Weds class meeting
- Watch and take notes on course videos before Weds class meeting
- Attend class for the live lecture and assignment
- Complete assignments regularly
- Engage with instructors and peers

COURSE GOALS: By the end of this course, you will be able to:

1. Appreciate the diversity of neuroscience subfields.
2. Explain fundamental nervous system anatomy and physiology.
3. Describe and model the molecular, cellular, and anatomical organization of the nervous system.
4. Analyze how neurons communicate through electrical and chemical signals and predict their responses.
5. Model the structure and function of sensory systems and predict their responses to stimuli.
6. Interpret scientific data and evaluate experimental methods used in neuroscience research.

CONTENT KNOWLEDGE REQUIREMENTS

To succeed in this course, you should have a foundational understanding of:

Biology concepts - Homeostasis, diffusion, concentration gradients

Molecular and cellular biology - Cell structure, function, and basic genetics

Graph literacy - Ability to interpret data

Since we will build upon these concepts to explore nervous system function, reviewing prior coursework or using free resources like Khan Academy may be beneficial if you need a refresher.

COMMUNICATION:

Email: I will communicate with you via your **D2L email account**. To ensure you receive all class emails, please **forward your D2L email to your MSU email**. To promote professionalism in communication, please be mindful of using respectful language in your emails and the teaching team will do the same.

Your Responsibilities:

Check your D2L email **daily** for announcements and messages. Respond to instructor emails within 48 hours

Instructor Response Time:

- Allow up to 48 hours for a reply. If you don't receive a response, feel free to follow up.

Private Discussion Forum: If you have any course-related questions that you want only the teaching team to see, post them in the *Private Discussion Forum* on D2L for a direct response from an instructor. Only course instructors can see these posts.

Class Discussion Forum: If you have course-related questions that you think other students might benefit from, you can post them in the *Class Discussion Forum* on D2L.

Announcements: All emails sent to the entire class will also be archived as **D2L announcements**, so you can always access important information.

Reminder Emails/Exam Result Emails: I use D2L's tools to send out messages to students based on things like assignment completion or exam performance. These messages are automatically sent but personalized using course data, so they're designed to be helpful and relevant to your experience in the class. Even though they're automated, you can always reply, and your message comes straight to me. I read and respond to all replies personally.

TEACHING TEAM

We are fortunate to have a whole team of people that are ready to help you in our course!

Melinda Osowski (Graduate Teaching Assistant): Hi everyone! My name is Melinda Osowski, and I am a PhD candidate in Dr. Rebecca Knickmeyer's lab. My research examines the structural connectome (the map of neural connections in the brain) and how it changes in aging and impacts cognition. I also enjoy participating in scientific outreach across campus, especially promoting women in STEM. Outside of the lab, I enjoy reading, playing softball, and bar trivia

Lauren Wade-Kleyn (Graduate Teaching Assistant): Hello, NEU301 students! My name is Lauren Wade-Kleyn, and I am excited to help you learn under Dr. Hedges's instruction! I am a Neuroscience PhD Candidate in Dr. Erin Purcell's lab, where my research focuses on the short- and long-term single-cell level effects of neural prosthetic implants with recording and/or stimulating capabilities. Outside of lab work, I spend my free time taking my Australian Shepherd, Wesley, on hiking and camping adventures with my husband, expanding my cooking skills, and painting or sketching. I'm a 5th year graduate student, so please reach out if you have any professional questions, especially if you're exploring the idea of grad school!!

Katie McGrath (Undergraduate Learning Assistant): Hi guys! My name is Katie McGrath, and I'm a senior studying neuroscience and genetics. Outside of classes, I'm a research assistant in the Mazei-Robison lab, where we work with mice to study neuropeptides involved in morphine behaviors. I've also done two summer research programs (one in Ireland and one at Mayo Clinic) so feel free to ask me any questions! Also, this will be my 5th semester as the Neuroscience Club outreach chair. In my free time, I love running, reading, and baking!

Mya Sebek (Undergraduate Learning Assistant): Hi everyone! My name is Mya Sebek, and I am a senior majoring in neuroscience with a cellular and developmental concentration. I work as a research assistant in Dr. Shane Crandall's lab where we are studying neural circuitry involved in sensory processing. I am the president of the neuroscience club, and volunteer in the pediatric wing at Sparrow Hospital. In my free time, I love to run, read, and go to MSU sporting events with my friends!

Viola Weber (Undergraduate Learning Assistant): Hello. My name is Viola Weber. I am a senior neuroscience major. I work as a research assistant in the Yan lab. We use grass rats as a diurnal model of Smith-Magenis syndrome and seasonal affective disorder. I also work as a Rehab Tech at Hope Network Neuro Rehab. I am also

the treasurer of the Neuroscience club here at MSU. Outside of that I enjoy crochet, reading, embroidery, rewatching shows, and playing the oboe.

STUDENT OFFICE HOURS

The table below lists the contact information for our entire teaching team: me (highlighted blue), 2 graduate teaching assistants (highlighted orange) and three undergraduate learning assistants (highlighted green).

Regardless of which section you are in, all students are permitted to attend any of the student office hours listed. These are times when course instructors will be available to answer any questions that you have about the content or the course. These are being held on Zoom for your convenience. The Zoom links and passwords are listed below. You can expect this to be an individual meeting between the student and the instructor.

Name	Email	Student Office Hours Day and Time	Zoom link and Password
Valerie Hedges, Ph.D. (she/her)	hedgesva@msu.edu	Thursday 1:30-3:30 pm	https://msu.zoom.us/j/98631316108 Meeting ID: 986 3131 6108 Passcode: NEU301
Melinda Osowski (she/her)	meiringm@msu.edu	Monday 9:30-11:30 am	https://msu.zoom.us/j/95246492877?pwd=0272ClcmGISYa8zZRgYnu2j8kaxBKh.1 Meeting ID: 952 4649 2877 Passcode: NEU301
Lauren Wade- Kleyn (she/her)	wadelau2@msu.edu	Tuesday 2:00-4:00 pm	https://msu.zoom.us/j/91307417574 ; Meeting ID: 913 0741 7574 Passcode: NEU301
Katie McGrath (she/her)	mcgra140@msu.edu	Tuesday 6:30-7:30 pm	https://msu.zoom.us/j/97433531008 Meeting ID: 974 3353 1008 Passcode: NEU301
Mya Sebek (she/her)	sebekmya@msu.edu	Thursday 12:30-1:30 pm	https://msu.zoom.us/j/99858786927 Meeting ID: 998 5878 6927 Passcode: NEU301
Viola Weber (she/her)	webervio@msu.edu	Monday 4:00-5:00 pm	https://msu.zoom.us/j/99440525905 Meeting ID: 994 4052 5905 Passcode: NEU301

COURSE MATERIALS

To access the course, log in to D2L using your MSU NetID: d2l.msu.edu. On D2L, you will find: online videos, course materials, additional resources, readings, quizzes, discussion forums, course email, and announcements.

Textbook: FREE Online Textbook (OER)

To reduce costs, we will use a freely available Open Educational Resource (OER) that I have prepared for this course. It is downloadable and available in multiple formats. It can be printed through the MSU Library (small fee).

Text Link (be sure to bookmark it!): [Introduction to Neuroscience – Simple Book Publishing \(msu.edu\)](https://www.msu.edu/library/introduction-to-neuroscience-simple-book-publishing)

Looking for additional Neuroscience reading?

If you're interested in other Neuroscience books (for supplemental or recreational reading), feel free to reach out- I love book recommendations!

FREQUENTLY ASKED QUESTIONS

Why are most Content Videos online?

More Inclusive:

- Accessible anytime - watch, speed up, slow down, or rewatch as needed
- Helps students with caregiving responsibilities, work, illness, or commuting issues

More accessible:

- Captioned videos for better comprehension
- Shorter, topic-based videos for flexibility

In-class assignments and Reflection Activities: What is the purpose?

- Low-stakes practice for critical thinking and problem-solving (mirrors exam challenges)
- Opportunity for self-reflection on study methods and exam preparations

Reading Expectations

- Textbook is FREE and online- accessible even after the course ends
- Weekly reading: 1-3 short chapters (~45 min total)
- Chapters are concise and directly related to class topics

LEARNING PACT

The Learning Pact is taken from *Liquid Syllabus* course provided by [CVC-OEI/@ONE](#) and authored by Michelle Pacansky-Brock.

INSTRUCTOR EXPECTATIONS

1. I will provide you with a clear, organized course that is designed to ensure you meet our course outcomes in a meaningful manner.
2. I will provide a variety of assignments to ensure your learning needs are met.
3. I will be actively present in your learning.
4. I will provide a supportive and safe environment for you to share and discuss ideas with your peers.
5. I will reach out to you when I sense that you need support.
6. I will treat you with dignity and respect and be flexible to support your individual needs.
7. I won't be perfect. I am human and will make mistakes at times. I will view mistakes as an opportunity to learn and grow.

STUDENT EXPECTATIONS

1. You strive to be an active participant in this course and strive to meet due dates.
2. You will maintain an open line of communication with me, so I understand how to support you.
3. You will contact me if you have a concern with meeting a due date.
4. You strive to regularly contribute to collaborative activities to ensure other members of the community have ample opportunity to read/listen, reflect, and respond to your ideas.
5. You will treat your peers with dignity and respect.
6. You will do your best to have patience with technology. There will be hiccups, expect them. We will get through them together.
7. You will give yourself grace. Expect to make mistakes. You are human and you are stressed.

COURSE SPECIFICS

You will need your MSU NetID to log in to the course from the D2L homepage to access our course materials (<http://d2l.msu.edu>). In D2L, you will access online videos, course materials, and additional resources. Activities will include readings, quizzes, discussion forums, email, and other online activities. This is **not a self-paced course**; assignments will have specific due dates throughout the week. Students who do not meet these deadlines will not earn credit for those assignments.

IN PERSON MEETING- WEDNESDAYS (SEE SCHEDULE)

The assigned reading and all videos associated with class should be completed before attending our in-person meeting. We will pick up in class where the videos leave off.

During the in-person meeting, students will participate in **live lectures combined with active learning activities**. This includes working through an in-class assignment with peers and instructors. These assignments are not graded for correctness but do count toward your final grade. This is meant to serve as a low-stakes formative assessments to reinforce course content. This time will be structured to include interactive instruction and hands-on problem-solving, with significant interaction from instructors.

Students who are unable to attend in person for any reason (whether due to illness, transportation issues, or other challenges) may join a synchronous Zoom meeting held during the same class time. This Zoom session is moderated by an instructor and allows students to engage in discussions with other online students, collaborate on assignments, and receive help as needed.

Even if you have been attending exclusively online, you are always welcome to attend class in person at any time. If you're unsure how to join a group or feel out of the loop, we're happy to help you connect with classmates and make the transition back to in-person participation as smooth as possible.

Attendance will be collected and recorded but will not impact your grade. Attendance will be collected and recorded because our class is part of a research study this semester that requires attendance data. You will be prompted to provide consent or not for the use of this data.

NEU 301 Synchronous Zoom Meeting (both sections)

Join Zoom Meeting

<https://msu.zoom.us/j/95393554380>

Meeting ID: 953 9355 4380

Passcode: NEU301

COURSE OUTLINE/SCHEDULE:

Each part of the course is detailed in the following sections but below are general guidelines regarding your routine in this course. Our weeks will “start” on Thursdays for new content release purposes, then graded items are due on different days prior to the next new content opening. **Students must watch the videos and take the quiz prior to coming to class on Wednesday.**

Day	Activity
Thursday (8:00 AM)	- New content videos open on D2L (remain available all semester) - Weekly quiz opens
Tuesday (11:59 PM)	- Weekly quiz due (Grace period available through Thursday at 11:59 PM)
Wednesday	- In-person and synchronous Zoom meeting - Live lecture and in-class assignment

Wednesday (11:59 PM)	In-class assignment due (Grace period available through Friday at 11:59 PM)
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Exam Review Sessions:

An exam review session will be held on the Thursday before each of our exams from 2:00–3:00 PM. These sessions are intended as open Q&A opportunities for students to ask questions they’ve prepared in advance. There will not be a formal presentation by the instructors.

As long as students are present, the review session will be recorded and posted on D2L later that day. Please refer to the course schedule for specific dates. In addition to these live sessions, study guides and review videos for each exam are available on D2L and are great study tools.

Exams:

- Exams are open for 1 day. They open at 8:00 AM and close at 11:59 PM and they are taken online through D2L
- EXAM DATES:
 - Exam 1 - September 12
 - Exam 2 - September 26
 - Exam 3 - October 24
 - Exam 4 - November 7th
 - Exam 5 - Finals Week (can be taken at any time during finals week- see schedule)

LATE WORK POLICY

I understand that sometimes circumstances might prevent you from completing quizzes or in-class assignments by the indicated due date. To help you in these situations, Quizzes and In-class Assignments have a 48-hour grace period after their due date. You do not need to inform an instructor that you are using a grace period for an assignment or quiz. There is not a limit to how many times you can use a grace period. **No additional extensions will be granted.**

- Quizzes are due on Tuesdays at 11:59pm (Grace period open until Thursdays at 11:59pm)
- In-class Assignments are due on Wednesdays at 11:59pm (Grace period until Fridays at 11:59pm)

If you have a serious or long-term issue preventing you from completing assignments, you must communicate with Dr. Hedges as soon as possible to discuss alternative arrangements and within 1 week of the original due date of the assignment.

COURSE ASSIGNMENTS AND GRADING

WHY THIS GRADING STRUCTURE?

I have been trying to improve grading equity within this course. For grades to be more equitable, your grade will reflect your performance more than your behavior (like participation or attendance).

Traditional grading often promotes extrinsic motivation (chasing points) rather than intrinsic motivation (learning for understanding). My hope is that this grading system will allow students to enjoy learning about the topics in the course and better understand the purpose and benefit of the different assignments. I have tried to create a grading system that:

- Encourages skill improvement over time.
- Reduces stress by minimizing the impact of early mistakes.
- Provides opportunities to revise and improve.
- Increases equity and inclusivity by allowing students to demonstrate growth.

D2L WEEKLY QUIZZES (11 Total)

Low-stakes quizzes to help you stay on track and prepare for exams.

Format:

- 10 multiple-choice/multiselect questions per quiz
- Untimed
- Three attempts allowed; highest score counts

Due Dates:

- Due Tuesdays at 11:59 PM
- 48-hour grace period until Thursday at 11:59 PM (no need to notify if used)

Grading:

- Credit (80% or higher) or No Credit
- Feedback unlocked after earning Credit or using all attempts
- Missed quizzes cannot be reviewed

Resources:

- “How to View Quiz Feedback” video available on D2L

IN-CLASS ASSIGNMENTS (11 Total – 22 points total)

Weekly problem-solving activities to build critical thinking and application skills. Graded for effort, not correctness, to help you engage deeply with neuroscience content and prepare for exams.

Details:

- 11 assignments total, each worth up to 2 points
- Answer keys posted on D2L after submission if you earn “Partial Credit”
- It’s your responsibility to check your answers against the key

How to Complete:

- Bring a laptop or tablet to complete electronically during class
- Collaborate in small groups (up to 5 students)
- Submit assignments as .docx or .pdf files (no .pages files accepted)
- Reflection and AI disclosure (completed as described in assignment instructions) are **REQUIRED** for partial/full credit

Grading Scale:

- **Full Credit (2 points):** 100% Complete with thoughtful, engaged responses
- **Partial Credit (1 point):** At least 50% completed with reasonable effort
- **No Credit (0 points):** Less than 50% completed, lack of effort, or any inappropriate AI use

Inappropriate AI use includes submitting AI-generated work without disclosure, using AI to bypass the learning process, or submitting material that is factually inaccurate or off-topic.

Use of Generative AI on In-Class Assignments:

You are permitted to use AI tools (e.g., ChatGPT) to support your learning on in-class assignments, but **not to complete the work for you**. These assignments are designed to help you practice thinking critically and solving problems on your own, which is essential to develop you as an independent thinker (and to prepare for exams). While I understand that some may use AI, I strongly encourage you to first attempt these assignments on your own to get the most out of the learning experience.

If you choose to use AI responsibly:

- Try the questions yourself first.
- Use AI to clarify or check your thinking, not to copy answers.
- Think critically about AI responses because AI is not always correct.
- At the end of each assignment, you must:
 - Reflect on any remaining questions you have.
 - Disclose any AI tools you used and how you used them.
 - Generic or vague responses will not receive full credit on the assignment.

Submissions that appear to be AI-generated without meaningful human engagement will receive no credit and may result in an Academic Dishonesty Report. Using AI responsibly means using it to support your learning, not to bypass it.

EXAMS

- Five exams total, each worth 40 points (points determine your exam performance level)
- Each exam covers only material since the previous exam and is not cumulative (including the Final Exam)
- Exams include multiple-choice and multiselect questions, timed and administered via D2L
- Exams will utilize the Lockdown Browser but will not have monitoring. Specific instructions will be provided in the instructions for each exam.

Allowed Resources (open note):

- Your personal course notes
- Completed in-class assignments
- Printed or downloaded copies of any course materials posted on D2L
- The course text – I have set the lockdown browser to allow access to our course book site

Important: If your notes or assignments are only saved digitally (e.g., on your computer or cloud), you won't be able to access them during the exam due to the lockdown browser. Be sure to print or download anything you'll need in advance.

Prohibited Resources:

- Any other online resources, including websites, search engines, and generative AI tools (use will result in an academic dishonesty report)

Grading Scale:

- Your exam percentage translates into one of four performance levels:

Performance Level	Score	Percentage Range	Description
Outstanding	3	85% or higher	Excellent mastery
Strong	2	72.5% - 84.99%	Good understanding
Satisfactory	1	60% - 72.49%	Basic Competence
Unsatisfactory	0	Below 60%	Needs Improvement

Missed Exams:

- Exams have specific windows for completion
- If you miss an exam due to uncontrollable circumstances, contact Dr. Hedges within 24 hours
- Scheduled events do not qualify as uncontrollable—plan and communicate conflicts early

Exam Corrections:

I believe that exams are a learning tool, and reflecting on mistakes helps deepen your understanding of course content. To support learning through reflection and improvement, you can complete **Exam Corrections** after your first graded attempt:

- You must complete the first attempt on time to be eligible
- You will retake only the questions you answered incorrectly (marked with a red exclamation point)
- Correct as many questions as you want and you can earn back up to 50% of missed points
- Your final exam grade is the average of your first and second attempts
- You'll have access to your feedback before the second attempt
- Detailed instructions are in the "Exam Information" module on D2L

Reviewing Exam Feedback and Reflections

- All exam feedback, reflections, and corrections occur during **Synthesis Weeks** (Week 6 and Week 12), when no new content is introduced
- Watch your D2L email for details on how and when to review feedback
- To make Exam Corrections, you must first submit an Exam Reflection on D2L
- Exam Corrections are optional but a great chance to improve your score

Example Exam Calculation with Corrections

Attempt 1:

Overall *attempt 1* score = 29/40 or 72.5%

On attempt 1 of the exam, this student earned a "Strong" on the Exam. If they were satisfied with this score, then no further action is needed.

Attempt 2:

Let's pretend that this student decided to complete the second attempt and earned the following grade:

Overall *attempt 2* score = 39/40 or 97.5%

The scores on the first attempt and second attempt will be averaged to determine the Final grade on the Exam.

Determination of final score on Exam

Final Exam Score = Average of attempt 1 and attempt 2 = $(29+39)/2 = 34/40$, or 85%

In this example, the student increased their grade to 34/40 and now has a grade of "Outstanding" on the Exam.

IMPORTANT: MINIMUM EXAM REQUIREMENT TO PASS

To pass the course, you must demonstrate a basic level of understanding across most of the material.

You must score at least a 1 ("Satisfactory" or better) on 3 out of the 5 exams to receive a passing grade in the course.

This means that even if your total exam score would place you in a passing category, you must show consistent effort and understanding across at least three exams. If you earn a score below 1 on two or more exams, your final grade will be a 0.0, regardless of your other assignments.

Why this policy?

This course is designed to build your understanding over time. This minimum ensures that anyone who passes

the course has shown at least partial understanding of most of the core material. **Remember, you get two attempts per exam to reach a Satisfactory level on the exam.**

OVERALL GRADE DETERMINATION

- The MSU 4.0 grading system is used to report final course grades. Grades for assignments will be posted electronically to D2L within one (1) week of the completed assignment/assessment due date.
- Refer to D2L often to determine your progress in the course. Instructors are not able to predict the grade that you will earn in this class prior to the completion of all assignments.

Total Exam Score (max 15 points) *Minimum Exam Requirement also applies*	In-Class Assignment Points (max 22 points)	Credit Quizzes (max 11)	Final Grade
13 – 15	19-22	9	4.0
11 - 12	16-18	8	3.5
9 - 10	14-15	7	3.0
7 - 8	12-13	6	2.5
5-6	10-11	5	2.0
4	8-9	4	1.5
3	6-7	3	1.0
Less than 3	Less than 6	Less than 3	0.0

Total exam score is determined by adding all 5 exam scores

Outstanding (score of 3), Strong (score of 2), Satisfactory (score of 1), Unsatisfactory (score of 0)

To pass, you must both:

- Earn at least 3 exams with a score of 1 or higher, and
- Meet the required totals in quizzes and in-class assignments shown in the table above.

Total Exam Score Example:

- Exam 1: Strong (score of 2)
- Exam 2: Outstanding (score of 3)
- Exam 3: Strong (score of 2)
- Exam 4: Satisfactory (score of 1)
- Exam 5: Strong (score of 2)

Total Exam Score = 10

CLASS POLICIES

DIVERSITY STATEMENT

Your experience in this class is important to me. I am committed to providing an inclusive learning environment for all members of our community, where students from diverse backgrounds and perspectives are recognized, respected, and seen as a source of strength and a source of enrichment for our intellectual community. I strive to be respectful of diversity in gender, sexuality, disability, age, religion, socioeconomic status, ethnicity, race, and culture. Your suggestions for ways in which these areas in the class can be strengthened are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

We have all lived through an unprecedented time in the pandemic and tragedy on our campus, resulting in substantial challenges outside of the classroom. If you are experiencing any type of hardship that may impact your participation and

engagement in this class, please reach out. You do not need to share details that you are not comfortable sharing. We can work together to create a plan to move forward.

LAND ACKNOWLEDGEMENT

Michigan State University occupies the ancestral, traditional, and contemporary lands of the Anishinaabeg – Three Fires Confederacy of Ojibwe, Odawa, and Potawatomi peoples. In particular, the university resides on land ceded in the 1819 Treaty of Saginaw. We recognize Michigan's 12 federally recognized Native Nations, historic Indigenous communities in Michigan, Indigenous individuals and communities who live here now, and those who were forcibly removed from their homelands. In offering this land acknowledgement, we affirm Indigenous sovereignty, history, and experiences.

Act: Visit the [Nokomis Cultural Heritage Center](#) near the Meridian Mall in Okemos to learn more about the Indigenous peoples of this area.

CONTESTING GRADES

You are expected to review your feedback for exams and quizzes, posted keys and posted videos on D2L before bringing your concerns to the instructors. Honestly self-assess whether you perhaps misunderstood or overlooked something, and if that mistake led to your grade. You are encouraged to contact your instructor to help clarify misunderstandings of the material. If a genuine grading error has been made, it would be appropriate to email or attend office hours to discuss your concern. However, I will not re-grade individual elements of an assignment/exam.

If you believe that the grade you received did not reflect the overall quality of the assignment/exam, you may formally request a re-grade of the entire assignment by Dr. Hedges within 7 days that the grade was posted to D2L. Please email Dr. Hedges stating as such, and that you understand the new grade will stand. It may be lower, higher, or the same as your initial grade.

STATEMENT OF OWNERSHIP

As members of a learning community, you are expected to respect the intellectual property of course instructors, like me. All course materials presented to you are my copyrighted property and are subject to the following conditions of use:

- You **may not** post recordings or other course materials online through sites such as Course Hero, Chegg, etc. or distribute them to anyone not enrolled in the class without the advance written permission of the course instructor and, if applicable, any students whose voice or image is included in the recordings.
- You **may not** commercialize lecture notes and university-provided course content. This includes posting any course materials to online sites.

GENERATIVE AI USE

Generative AI tools (e.g., ChatGPT, Claude, Copilot) can be helpful for supporting your learning- but only when used **appropriately and responsibly**. This course emphasizes building your own critical thinking and problem-solving skills, and assignments are designed with that goal in mind.

Recommended Tool: Copilot via MSU If you choose to use generative AI, you are strongly encouraged to use **Copilot accessed through MSU**. This version is integrated with Microsoft's educational platform, offering enhanced privacy protections for students and aligning with MSU's academic integrity standards. Copilot also utilizes the advanced ChatGPT-4 and ChatGPT-5 models, providing high-quality responses while maintaining safeguards appropriate for academic use.

Exams

The use of generative AI on exams is **strictly prohibited**. Exams are meant to assess your personal understanding and application of course material. Only your course notes and online textbook may be used during exams.

Submitting AI-generated responses on exams violates the university's academic integrity policies and will be reported.

Quizzes and Other Graded Assignments

You may **not** use generative AI to complete or draft graded assignments (including quizzes, in-class work, reflections, or Honors assignments). These activities are meant to help you independently practice applying course concepts.

In-Class Assignments

AI may be used to support your learning on in-class assignments, but not to complete them for you. You are expected to:

- Attempt problems on your own first.
- Use AI to clarify or check your understanding, not to copy answers.
- Critically evaluate AI responses.
- Reflect on what you still needed to figure out yourself, even after using AI.
- Disclose any AI use at the end of the assignment, including which tool you used and how you used it. Vague responses will result in not receiving full credit on the assignment.

In-class assignments are graded on effortful completion, and work that appears to be AI-generated without meaningful student engagement will not receive credit and may be reported for academic dishonesty.

Appropriate Uses of AI in This Course

You may use AI to support your studying and deepen your understanding, including:

- Asking for explanations of difficult concepts or alternative ways to understand course topics.
- Generating practice questions to test your knowledge.
- Brainstorming strategies for approaching problems.
- Analyzing why an assignment answer might be right or wrong after turning it in (and verifying with our course materials).

Inappropriate Uses of AI in This Course

- Using AI to write or complete graded assignments.
- Copying AI responses into quizzes, exams, in-class assignments, or reflections.
- Relying on AI as your primary or only source of information.
- Failing to disclose AI use when required.

Remember: **Using AI responsibly means using it to support your thinking, not replace it.**

Refer to MSU's MSU guidance about the use of generative AI: [Guidelines and Policies on Generative AI Use at MSU](#)

Academic Integrity

Any students found violating the conditions described in this policy or the MSU academic integrity guidelines will face academic disciplinary sanctions, including receiving a penalty grade in the course and the issuance of an academic dishonesty report.

REQUESTING RECOMMENDATION LETTERS:

I am happy to write letters of recommendation for students who have demonstrated strong academic performance and engagement. Due to limited time, I can only write letters for students who have completed at least one course with me (must wait until the end of the semester). To qualify, you must:

- Earn a 4.0 in at least one of the courses you took with me
- Maintain a 3.5 GPA overall
- Demonstrate engagement by regularly attending class (no more than 2 absences)
- Consistently submit high-quality work and meet all assignment expectations

If you meet these criteria, you may email me to request a letter. I will verify your eligibility and provide further instructions at that time.

HONORS OPTION

Please see Honors Option module on D2L for details.

COMPUTER SKILLS AND DIGITAL INFORMATION LITERACY

- Using the learning management system, D2L
- Using email with Attachments
- Copying/pasting and editing text
- Basic word processing skills necessary for completion of assignments
- Basic internet literacy skills to efficiently navigate D2L and email

COURSE SCHEDULE: NEU 301 Fall 2025 (Section 001 and Section 002)

Refer to the course calendar (below) for a schedule of topic dates and due dates. Assignment details will be explained in detail within each week's corresponding learning module (week) of the course. If you have any questions, please contact your instructor.

Week	Class Meeting Dates	Topics	Readings: Introduction to Neuroscience	Quizzes	Assignments	Exam Review Session	Exams
1 Mon 8/25- Wed 8/27	Wed 8/27	Class Introduction	Chapter 1: What is Neuroscience?	NO QUIZ	Due 8/27 at 11:59pm Start of Semester Reflection Survey Syllabus and Grade Agreement Quiz Study Consent Form	Required to gain access to course content	
2 Thurs 8/28- Weds 9/3	Wed 9/3	Unit 1: Neurons and Glia	Chapter 2: Cells of the Nervous System: The Neuron Chapter 3: Cells of the Nervous System: Glia Chapter 4: Visualizing Cells of the Nervous System	Due: 9/2 at 11:59pm Week 2 Quiz	Due 9/3 at 11:59pm Week 2 In-class assignment		
3 Thurs 9/4- Fri 9/12	Weds 9/10	Unit 2: Resting Membrane Potential	Chapter 5: Ion movement Chapter 6: Membrane Potential Chapter 7: The Membrane at Rest	Due: 9/9 at 11:59pm Week 3 Quiz	Due: 9/10 at 11:59pm Week 3 In-class assignment	Thurs 9/11, 2pm-3pm (Zoom)	EXAM 1 (Unit 1 and Unit 2) Friday 9/12 8am-11:59pm
4 Sat 9/13- Weds 9/17	Weds 9/17	Unit 3: Action Potential	Chapter 8: Electrical Activity in Neurons Chapter 9: Action Potentials Chapter 10: Voltage Clamp	Due: 9/16 at 11:59pm Week 4 Quiz	Due: 9/17 at 11:59pm Week 4 In-class assignment		

Week	Class Meeting Dates	Topics	Readings: Introduction to Neuroscience	Quizzes	Assignments	Exam Review Session	Exams
5 Thurs 9/18- Fri 9/26	Weds 9/24	Unit 4: Synaptic Transmission Unit 5: Neurotransmitters	Chapter 11: Synapse Structure Chapter 12: Steps in Synaptic Signaling Chapter 13: Neurotransmitter Identification and Action: Ionotropic Receptors vs Metabotropic receptors	Due: 9/23 at 11:59pm Week 5 Quiz	Due: 9/24 at 11:59pm Week 5 In-class assignment	9/25, 2pm-3pm (Zoom)	EXAM 2 (Unit 3, Unit 4, some of Unit 5) Friday 9/26 8am-11:59pm
6 Sat 9/27- Thurs 10/3	Weds 10/1	Synthesis Week No In-class assignment or quizzes due No new content You must review Exam Feedback BEFORE completing your Reflection.			Exam 1 and 2 Feedback Review and Reflection Opens Sat 9/27 (time TBA) DUE Weds 10/1 at 11:59pm	Exam Corrections on Exam 1 and Exam 2 (2nd attempt) Thursday 10/2, 8am- 11:59pm	
7 Fri 10/3- Weds 10/8	Weds 10/8	Unit 5: Neurotransmitters cont. Unit 6: CNS Anatomy	Chapter 14: Introduction to Small Molecule Neurotransmitters Chapter 15: Neurotransmitters: Acetylcholine Chapter 16: Neurotransmitters Amino Acid Neurotransmitters (Glutamate, GABA, Glycine) Chapter 17: Neurotransmitters: Biogenic Amines (Serotonin, Histamine)	Due: 10/7 at 11:59pm Week 7 Quiz	Due: 10/8 at 11:59pm Week 7 In-class assignment		

Week	Class Meeting Dates	Topics	Readings: Introduction to Neuroscience	Quizzes	Assignments	Exam Review Session	Exams
			Chapter 18: Neurotransmitters: Catecholamines (Dopamine, Norepinephrine, Epinephrine) Chapter 19: Neurotransmitters: Atypical Neurotransmitters Chapter 20: Drug and Toxin Effects				
8 Thurs 10/9- Wed 10/15	Weds 10/15	Unit 6: CNS Anatomy	Chapter 21: Anatomical Terminology Chapter 22: Brain Structure Differentiation Chapter 23: Brain Anatomy Chapter 24: Additional Structures of the Nervous System Chapter 25: Imaging the Living Brain	Due: 10/14 at 11:59pm Week 8 Quiz	Due: 10/15 at 11:59pm Week 8 In-class assignment		
9 Thurs 10/16- 10/22 Fall Break 10/20-10/21	Weds 10/22	Unit 7: Peripheral Nervous System	Chapter 26: Spinal Cord Structure Chapter 27: Peripheral Nervous System	Due: 10/22 at 11:59pm Week 9 Quiz	Due: 10/22 at 11:59pm Week 8 In-class assignment	10/23, 2pm-3pm (Zoom)	EXAM 3 (Rest of Unit 5, Unit 6, Unit 7) Friday 10/24 8am-11:59pm
10 Sat 10/25- Weds 10/29	Weds 10/29	Unit 8: Visual System: The Eye	Chapter 28: General Principles of Sensory Systems Chapter 29: Visual System: The Eye	Due: 10/28 at 11:59pm Week 10 Quiz	Due: 10/29 at 11:59pm Week 10 In-class assignment		
11 Thurs 10/30- Fri 11/7	Weds 11/5	Unit 8: Visual System: Central Visual Systems	Chapter 30: Visual System: Central Processing	Due: 11/4 at 11:59pm Week 11 Quiz	Due: 11/5 at 11:59pm Week 11 In-class assignment	11/6, 2pm-3pm (Zoom)	EXAM 4 (Unit 8) Friday 11/7 8am-11:59pm

Week	Class Meeting Dates	Topics	Readings: Introduction to Neuroscience	Quizzes	Assignments	Exam Review Session	Exams
12 Sat 11/8- Thurs 11/13	Weds 11/12	Synthesis Week No In-class assignment or quizzes due No new content You must review Exam Feedback BEFORE completing your Reflection.			Exam 3 and 4 Feedback Review and Reflection Opens Sat 11/8 (time TBA) DUE Weds 11/12 at 11:59pm	Exam Corrections on Exam 3 and Exam 4 (2nd attempt) Thursday 11/13, 8am- 11:59 pm	
13 Fri 11/14 - Weds 11/19	Weds 11/19	Unit 9: Auditory System	Chapter 31: Auditory System: The Ear Chapter 32: Auditory System: Central Processing	Due: 11/18 at 11:59pm Week 13 Quiz	Due: 11/19 at 11:59pm Week 13 In-class assignment		
14 Thurs 11/20- 11/26 Thanksgiving Break	NO CLASS	Unit 10: Vestibular System	Chapter 33: Vestibular System	NO QUIZ and NO IN-CLASS ASSIGNMENT! Have a great break!!!			
15 Monday 12/1-Fri 12/5	Weds 12/3	Unit 11: Olfactory System Unit 11: Gustatory System	Chapter 34: Gustatory System Chapter 35: Olfactory System	Due: 12/5 at 11:59pm Week 15 Quiz	Due: 12/3 at 11:59pm Week 15 In-class assignment	Thursday 12/4, 2pm-3pm (Zoom) Friday 12/5, 2pm-3pm (Zoom)	
16 Monday 12/8-12/13	EXAM 5 (Unit 9, 10, 11)- Attempt 1 and Attempt 2 - Opens Monday 12/8 at 8am - DUE Friday 12/13 at 11:59pm						

TECHNOLOGY RESOURCES AND REQUIREMENTS:

TECHNOLOGY REQUIREMENTS AND RESOURCES

- Internet connection (preferably high speed)
- Access to D2L homepage: [D2L Home Page](#)
- Access to Google Classroom page: [Google Classroom Home page](#)
- See the Student Handbook under Policies and Procedures for Computer Technology and Laptop requirements
- The [MSU Tech Store](#) offers special computer hardware and software pricing for students.
- Microsoft Office 365 if available (for free) to all students by logging in through this website: [Microsoft 365 MSU](#) with your MSU username and password

TECHNICAL ASSISTANCE

- If experiencing a problem, you are required to contact the help desk first.
- If you require technical assistance, or need to report a problem:
 - Visit the IT support site: [MSU IT Support](#)
 - Visit the D2L Help site: [D2L Help Site](#)
 - Call IT Help Line at 517-432-6200 or toll free (844) 678-6200
- If you have any technology difficulties accessing D2L, contact the IT Help Line, explain the situation, and ask for assistance.
- Faculty is not responsible for assisting in resolving technology difficulties
- You are required to notify me via email regarding any technical difficulties, **after** speaking with IT Help Desk

RESOURCES FOR MSU STUDENTS:

[The Resource Center for Persons with Disabilities](#) – RCPD offers resources, support, and accommodations to students with disabilities. This can include, but is not limited to, autism spectrum disorders, blindness and visual impairment, brain injury, chronic health disabilities, deaf / hard of hearing, learning disabilities and attention deficit, mobility disabilities psychiatric disabilities, and temporary conditions. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at www.rcpd.msu.edu. Once your eligibility for accommodation has been determined, you will be issued an Accommodation Letter. **Please present this letter to Dr. Hedges as soon as possible.**

[Counseling and Psychiatric Services](#) - CAPS is the place on campus for students seeking help for a wide range of concerns, including depression, anxiety, stress management, homesickness, adjustment or acculturation, relationships, gender identity and sexual orientation (LGBTQ) concerns, substance abuse, trauma, eating or body image concerns, and other personal mental health concerns.

[NatSci Food Bank](#) - The NatSci Office of Diversity, Equity, and Inclusion, in collaboration with MSU Food Bank, is pleased to share a free resource for all students and employees. Items include snacks, quick meals, breakfast items, ingredients for lunches and dinners, spices, and others. It is located in Room 154 in the Natural Science Building. It is open Monday through Friday from 8.30 am to 1:30 pm and 2.00 pm- 4.30 pm. **No Sign Up Needed.** For questions and inquiries about this resource, please get in touch with Nick Goldblatt via email at natsci.dei@msu.edu.

[Student Advocates for Essential Needs Security \(SAENS\)](#) is a registered student organization within MSU that is open to currently enrolled undergraduate and graduate students. SAENS works with MSU's on and off-campus resources to raise

awareness and support the needs of students related to housing, food, and basic care items. SAENS advocates on behalf of students for the equitable distribution of essential need items to students including affordable housing, access to healthy food options, and access to hygiene resources to promote student success.

[The Student Parent Resource Center](#) offers a supportive environment to obtain information and resources for all student parents and their families on and off campus. Within Resource Center is the [Student Parents on a Mission \(SPOM\)](#), a registered student organization for MSU students with children. This support system connects student parents through parent meetings, family fun events, scholarship awards, and a holiday adoption program.

[Office of the University Ombudsperson](#) - Whether you are a student, faculty member, or staff, the Office of the University Ombudsperson offers a confidential place to discuss both academic and nonacademic concerns including, administrative issues, workplace issues, or any concern that may relate to Michigan State University students.

The [Online Engagement Center](#), part of the [Neighborhood Student Success Collaborative](#) – We promote academic proficiency, institutional navigation and socio-emotional engagement, which support student success. We do this through: Academic advising and academic success coaching, Engagement Center resources, our student success programs (Spartan Success Scholars, DOW STEM Scholars Program, and Detroit M.A.D.E. Scholars Program) and Collaborative Learning Center (where we train peer educators across the university, provide success skill workshops, and are experts on non-cognitive indicators of academic success)

[The Spartan Strong Foundation](#) has been created to provide support for the evolving needs of individuals impacted by tragic events. The Spartan Strong Fund exists to harness Spartans' collective will to take action and support one another.

The [Lesbian, Bisexual, Gay, and Transgender Resource Center](#) – We lead and collaborate on university-wide initiatives that prepare students to thrive in our diverse world, and enhance the campus climate and support services for students marginalized by their sexuality or gender identity.

The [MSU Food Bank](#)- MSU Student Food Bank was founded to help students who are dealing with [food insecurity](#) (having limited food availability with a reduction in the quality or variety of food intake that often results in disrupted eating patterns). A lack of food security can be a considerable obstacle to academic success. The MSU Student Food Bank is a non-profit and serves over 6,000 students, many with families, and distributes over 110,000 pounds of food. See their site about eligibility and use of this service. [The Greater Lansing Food Bank](#) also offers mobile distribution and food pantries.

[The Campus Meditation Map](#) was created by Beal Scholar Anhad Viswananth as part of the Garden's Wellness program. Go to the link for a map and a list of meditation sites.

MSU POLICIES

ATTENDANCE:

Students are expected to participate in all course activities. See the Ombudsperson's web site for a discussion of student observance of major religious holidays, student-athlete participation in athletic competition, student participation in university-approved field trips, medical excuses and dean's drop for students who fail to attend class sessions at the beginning of the semester.

Attendance will be recorded due to our class participating in a research study this semester. Attendance has no impact on student grades.

THE SPARTAN CODE OF HONOR ACADEMIC PLEDGE:

“As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing to endeavor to build personal integrity in all that I do.”

ACADEMIC INTEGRITY

The “Academic Freedom for Students at Michigan State University” document (found at <http://splife.studentlife.msu.edu>) is a legal document that you, as a member of the MSU community, should be familiar with. The welcome letter at the beginning reads, in part:

“As an academic community, it is necessary to set standards that will promote an environment conducive to learning. The first part of the Spartan Life presents the policies, regulations and guidelines developed to provide an atmosphere that furthers opportunities for intellectual and personal development while protecting individual freedoms. As a student you are encouraged to exercise your rights, and you are expected to meet your responsibility to adhere to the standards set. The second part of this guide serves to inform you of the rules, regulations, rights, and responsibilities that have been established in the interest of all members of the University community.”

Academic misconduct, including but not limited to plagiarizing, cheating, and submitting falsified data will not be tolerated in this course. Individual student assignments that contain portions that are deemed by Dr. Hedges to be highly similar to an assignment submitted by another student in current or previous semesters or to an internet or published source may be considered a violation of academic integrity. See “Section 1.00 PROTECTION OF SCHOLARSHIP AND GRADES and Student Academic Integrity FAQs” for detailed information about definitions of academic integrity, examples of misconduct, and advice about how to avoid it.

In this class, you are NOT permitted to share answers or materials with other students (past, present or future) nor are you permitted to collaborate on any quizzes or exams in this course with any other students (past, present, or future). You are not allowed to obtain assignments from another student enrolled in the current or a previous semester. When required to use information from in published papers or other sources, it must be re-stated in your own words and cited as specified in class.

Suspected violations of the MSU policies will result in a meeting with Dr. Hedges. Depending on the severity of the violation, penalties for academic dishonesty may range from 0 points for an item on the assignment, to 0 points for the entire assignment, to a failing grade for the class. If a penalty grade is administered, Dr. Hedges is required to submit an academic dishonesty report to the university, which will be added to the student’s record. The student will be required to complete a course on academic integrity, and the Dean may choose to impose other sanctions. Providing your completed assignments and answers to quizzes and assignments, to other students currently enrolled in NEU301 or those who may take NEU301 in the future is considered a violation of academic integrity and may subject you to sanctions by the university even if you are no longer enrolled in the class.

TITLE IX: OUR COMMITMENT:

“Michigan State University is committed to fostering a culture of caring and respect that is free of relationship violence and sexual misconduct, and to ensuring that all affected individuals have access to services. For information on reporting options, confidential advocacy and support resources, university policies and procedures, or how to make a difference on campus, visit the Title IX website.”

LIMITED CONFIDENTIALITY:

“Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices (including the Department of Police and Public Safety) if you share it with me (in writing or in person), if I overhear it from others, or if I am informed by others:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff
- Credible threats of harm to oneself or to others

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting you are encouraged to make an appointment with the MSU Counseling Center.” <http://oie.msu.edu/mandatory-reporting.html>

RELIGIOUS OBSERVATION POLICY

We will honor the [Religious Observance Calendar](#) for the University. Students who are absent from classes on these days will not be disadvantaged in any way. I have tried to avoid scheduling major assignments during the major holidays of religions on campus when possible.

- Exams that do fall on a religious holiday can be reasonably rescheduled without any penalty.
- You do not need to use a late pass for an assignment that falls on an observed religious holiday.
- **You must inform me (Dr. Hedges) at least 2 weeks prior to the due date of the assignment or exam that it falls on an observed religious holiday to plan for that assignment/exam**

GRIEF ABSENCE POLICY

The faculty and staff should be sensitive to and accommodate the bereavement process of a student who has lost a family member or who is experiencing emotional distress from a similar tragedy so that the student is not academically disadvantaged in their classes or other academic work (e.g., research). For undergraduate students it is the responsibility of the student to: a) notify the Associate Dean or designee of their college by completing the grief absence request form <https://reg.msu.edu/StuForms/Stuinfo/GriefAbsenceForm.aspx> in a timely manner, but no later than one week from the student's initial knowledge of the situation, b) provide appropriate verification of the grief absence as specified by the Associate Dean, and c) complete all missed work as determined in consultation with the instructor. It is the responsibility of the Associate Dean or designee to: a) determine with the student the expected period of absence – it is expected that some bereavement processes may be more extensive than others depending on individual circumstances, b) notify the faculty that the student will be absent, and c) receive verification of the authenticity of a grief absence request upon the student's return. It is the responsibility of the instructor to work with the student to make reasonable accommodations and to include appropriate language describing such accommodations in their course syllabus, so that the student is not penalized due to a verified grief absence. Students who believe their rights under this policy have been violated should contact the [MSU Office of the University Ombudsperson](#) for information on the academic grievance procedures.

COURSE DROPS AND ADDS

Can be found on the academic calendar at: <https://reg.msu.edu/ROInfo/Calendar/academic.aspx>