

Syllabus Behavioral and Cognitive Neuroscience

NEU402

Spring Semester 2025

Lecture sessions

Instructor: Dr. Charlotte Vanacker
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Office: BPS, 2nd floor, Room 2201G
Office hours: Tuesday 1-3pm **in person or via zoom**. For more extended conversations, please request an appointment outside of office hours.
Zoom link: <https://msu.zoom.us/j/9459826115>
Meeting ID: 945 982 6115

Lecture time: 10:20-11:40am T/R

Location Biomedical and Physical Science Building (BPS) 1415

Course description:

This course is intended to introduce you to behavioral and cognitive neurosciences with an appreciation for the biological basis of everyday behaviors, such as perceiving the environment, learning, feeling emotions, and thinking. The course is articulated around three big parts: I/ The emergence of behaviors II/ Motivated behaviors and III/ Emotions and Cognition. My background is in Physiology and Neuroscience; we may use some psychological approaches during this class but I am not a psychologist, and the main focus is the biology of behaviors. Additionally, you will learn about the physiological correlates of many psychological and neurological conditions, such as schizophrenia, depression, ADHD, autism spectrum, and drug addiction. We will use research publications to understand how researchers discovered connections between the brain and the behaviors.

Prerequisites: NEU301 and NEU302.

Learning objectives:

1. Analyze the biological basis (cellular and molecular mechanisms) at the origin of behaviors.
2. Associate brain areas and pathways with behaviors. Understand how they are involved in the emergence of these behaviors and how behaviors can be affected by conditions and damages.
3. Discuss the role of the brain and the nervous system in health and disease
4. Understand how various research methods are used to study the biological basis of behavior in humans and animals.
5. Identify the major neurotransmitters and discuss the impact of each on behavior and diseases.

Course material, technology, and tools:

Textbook

For this course, you are required to purchase the 'enhanced ebook' online version of the following textbook:

Breedlove, S., M. and Neil V. Watson. *Behavioral Neuroscience* (10th Edition). Oxford University Press Academic US, 2023.

Please access the OUP website directly via this link, which includes a discount on the original price:

https://global.oup.com/ushe/product/9780197616857?ebcode=STUDENT25&period=6M&utm_source=D2S&utm_medium=Highspot&utm_campaign=FDOC

You can also use the QR code below to access the book:

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Behavioral
Neuroscience
TENTH EDITION
S. Marc Breedlove
Neil V. Watson
OXFORD

bit.ly/3BXq9uU

*Ebooks are available from OUP USA and prices are stated in USD.

[Behavioral Neuroscience 9780197616857 STUDENT25 DTS Flyer](https://global.oup.com/ushe/product/9780197616857?ebcode=STUDENT25&period=6M&utm_source=D2S&utm_medium=Highspot&utm_campaign=FDOC)

Other resources

- **Computer with Internet access:** Interactive teaching tools will be used during the lectures (including and not restricted to iClicker, Kahoot, Poll Everywhere, Google Jamboard). It is recommended that you attend the class sessions with a laptop that have internet access or at least a phone. You will need your laptop to access pre-class activities, homework, quizzes, and exams on D2L (online, see below).

Interactive tools can greatly facilitate learning, but there are also opportunities for misuse. I ask that you take responsibility for your actions surrounding the use of these tools. During lectures, please use your device only for active learning and tasks related to the discussion. Be respectful in your interactions and posts while using these tools.

- **D2L**

D2L will be used for class-related material and communication including but not limited to:

- Schedule and Syllabus
- Lecture slides
- Videos
- Quizzes and Exams
- Pre-class activities, assignments and homework
- Resources
- Announcements and D2L emails: To ensure that you receive important announcements, you are required to have your announcements setting turned on. You are responsible for reading the information I send to students via D2L announcements and emails. You are responsible for making sure you have access to your D2L emails regularly (it is highly recommended that your D2L emails are forwarded to your main MSU email address or any email you use daily)
- Grades

To access D2L go to [Homepage - Michigan State University \(msu.edu\)](https://www.d2l.msu.edu) or www.d2l.msu.edu and log in with your MSU ID and password.

- **iClicker**

iClicker Cloud will be used to interact and answer questions during class. This will help me evaluate your knowledge, provide everyone a chance to participate, and increase your learning experience. This will also provide feedback on course comprehension, help you master challenging concepts, and allow you to review practice questions after class.

- If you don't have an account with iClicker Cloud yet, you must create one here: [iClicker Student - Login](#)
- You can search for Behavioral and Cognitive Neuroscience, NEU402, or search for our course using the code **NMBR**. You can also use the following link:

NEU 402 - Behavioral and Cognitive Neuroscience

Go to

join.iClicker.com
NMBR

<https://join.iclicker.com/NMBR>



- Note: iClicker is **free** to use for MSU faculty and students. You should not be prompted for payment. If you have used iClicker Reef in the past, the interface may say that your subscription has expired. However, you do not need to purchase a subscription as long as you are taking courses at MSU. The product should still work. If the product does not work, contact iClicker support at <https://www.iclicker.com/support> and they will help you troubleshoot the issues. If you have paid for iClicker Reef accidentally, please contact iClicker support for help with a refund.
- **Set up the device(s) you'll use to participate in our class sessions.** You can download the iClicker student mobile app via the App Store or Google Play, or you can use the iClicker web app by signing in as a student at iclicker.com.

For technical difficulties and laptop related assistance contact the MSU D2L HelpDesk [Technology at MSU - Help & Support | Michigan State University](#) or visit the computer store on campus.

General policies, guidelines and expectations:

Lectures:

Classes are in person, however, there is a level of uncertainty as to how the pandemic, or other events, will continue to impact our life and work. During the scheduled lecture periods on Tuesdays and Thursdays, 10:20-11:40am, we will meet in person in BPS, Room 1415. Participation in these meetings is required. They will be based on in-class activities, group work, and lectures and will help you complete the weekly worksheets (see description below). These meetings will complement pre-class activities that you will be required to complete before attending the lectures (mostly videos and readings posted on D2L, and readings from the book). These sessions will also give students the opportunity to interact with both the instructor and other students, ask questions regarding the material, and obtain feedback on assignments and exams. Thus, it is in your best interest to attend the lectures. Lectures will be recorded and available on D2L later (usually the same day). Students will be asked to complete online quizzes and online worksheets according to the posted schedule and will receive credit for the completion of post-class work. Three in-person exams related to the material, INCLUDING one final exam during finals week, will be assigned during the semester (see below for details and dates).

IMPORTANT:

To ensure that I am able to best meet your needs and support you throughout this semester, I ask you the following:

- Communicate with me about any changes in your situation or needs during the semester.
- Read and complete assigned material as much as possible, in a timely manner.
- Adhere to the 'Environmental health and safety' guidelines: [COVID-19 | Environmental Health & Safety | Michigan State University \(msu.edu\)](#)
- Share your letter of accommodation with me if you have one, as soon as possible.

Course Grading:

Your grade for NEU402 will be calculated as follow:

Lecture Grades:

9 Quizzes (10-20 points each)	170 points
9 Worksheets (10 points each)	90 points
3 Exams (50 points each)	150 points
3 post-exam surveys (5 points each)	15 points
9 Topic discussions (5 points each)	45 points

Total Score**470 points**

As noted above, students will accumulate points throughout the semester by completing quizzes, exams, worksheets, surveys and participating in topic discussions. The points will be converted to a percentage to determine the GPA for the course. Semester grades will be based on the grading scheme below:

Grading Scale:

4.0 = 90% and above
3.5 = 85% - 89.9%
3.0 = 80% - 84.9%
2.5 = 75% - 79.9%
2.0 = 70% - 74.9%
1.5 = 65% - 69.9%
1.0 = 60% - 64.9%
0 = below 60%

Exams Details

Three exams will be given throughout the semester, including the finals. The exams will be online on D2L but performed in-person, proctored in class during class time. It is the student's responsibility to come to class on exam days, during the open period of time announced, and to submit it properly. **Absence or late submitted work will result in zero credit.** The exam content is based on material covered in pre-class, in-class, and post-class activities. Exam dates are subject to change if situations arise during the semester that may require alterations to the material coverage schedule.

Exams are scheduled on the following weeks and are subject to change at professor's discretion:

Exam 1: Week 6, Thursday, February 20th at 10:20am

Exam 2: Week 12, Thursday, April 3rd at 10:20am

Exam 3: Week 16, Friday May 2nd at 7:45am!! (*I know!*)

Day of exam Protocol

The exams will consist of multiple choice, multi-select, true & false, matching or short answer questions. Exams are in person, are given through D2L and remain open during a specific class session. Grades won't be available immediately but will be released once all students have submitted their exam. **At the end of the time period, the exam will close and answers will be submitted automatically for grading. Students are responsible for completing the exam during the time window.**

Make-up Exams

Exams will be announced early on, allowing you to manage and anticipate your schedule. Known conflicts with exam dates must be discussed with the instructor no less than one week prior to the exam date. Documentation must also be provided no less than one week prior to the exam date. **You are responsible for communicating with me.**

Known conflicts include, but are not limited to: military duty, athletic travel, court dates, etc. Remember that you are responsible for taking your exams and quizzes, and any known absence should be anticipated.

If you cannot take your exam on time for a last-minute reason, contact me immediately. Documentation must be provided within 48 hours of the exam date (or within 48 hours of the date on the excuse documentation). If approved, make-up exams must be scheduled within one week of the exam date and will take place in my office in BPS. If you miss your scheduled make-up exam you will receive a zero for the exam. Unexcused missed exams (after the 24-hour contact period) will result in a zero grade.

The schedule is **tentative and may change depending on the pace of the course**. Please note that for some book chapters, not all material will be covered in lectures. See the weekly topic schedule below.

Quizzes

There will be 9 quizzes in total over the semester. Each quiz is associated with a module (module 1 through 9). These assignments are 20 points total, except Quiz 9, which will be shorter and worth 10 points. Quizzes will open at the end of the modules and will remain open for a few days. The highest grade of the two attempts is the one that will be posted in the gradebook. The answers to quizzes will be available after your second attempt. The completion of the weekly worksheet will help you study for the quizzes.

Worksheets

There will be 9 worksheets over the semester (one for each module). Worksheets are documents that help you walk through class activities and content. It is recommended that you open your worksheet when starting to complete the course content. They will help you analyze the material and study for quizzes and exams, as they are considered study guides. Worksheets are not formally graded, but the grade varies from 0 to 10 according to effort and completion. It is work that you are doing for yourself. Worksheets that are considered poorly completed (meaning no sentences, many mistakes, a poor understanding of the topic, or partial completion) will receive no credit. There will be a deadline for worksheet submission. The keys for the worksheet will be available on D2L after the deadline.

Topic discussions

You will have the opportunity to earn 5 points for participation in class discussions for each Module. To earn those points, you must open a discussion thread or participate in a thread in

the discussion boxes in D2L. You are encouraged to answer questions from your peers if you have an answer. Your posts should be original questions or viewpoints on an answer. Posts such as, "Yeah, I had that question, too," or, "I agree with the last post," will not earn you points. Your posts need to reflect that you have thought about the topic in order to receive points. You must participate before the deadline listed on D2L.

Late work policy

Assignments must be turned in on time to receive credit for the assignment. Make it a habit to double-check that you submitted the correct document to D2L prior to the deadline.

The exception to this policy is that each student is granted **three** assignment extensions as a form of 'late passes':

- Two 24-hour late passes.
- One 1-week late pass.
- These extensions may be used only for quizzes, worksheets, or homework assignments. They may not be used for Exams.
- You are required to send me (Dr. Vanacker) an email telling me you wish to use a late pass, and which late pass.
- You are advised to save free extensions for an unanticipated event that prevents you from submitting on time.
- You may not take back a previously used late pass to use on a new assignment.

***** You may not show an instructor the time it was last modified on your computer to receive credit for any assignment. *****

Tentative Spring semester lecture schedule (**schedule subject to change at professor's discretion**):

Week 1 Jan 13-17	Course introduction (Module 1) and Organization of the Nervous system (Module 2)
Week 2 Jan 20-24	Organization of the Nervous system (Module 2)
Week 3 Jan 27-31	Perception and experience (Module 3)
Week 4 Feb 3-7	Module 3 continued and Visual Perception (Module 4)
Week 5 Feb 10-14	Module 4 continued
Week 6 Feb 17-21	Module 4 continued EXAM I Modules 2 to 4
Week 7 Feb 24-28	Learning and Memory (Module 5)
Week 8 March 3-7	<i>Spring break!</i>
Week 9 Mar 10-14	Module 5 continued and Drug addiction and reward (Module 6)

Week 10 Mar 17-21	Module 6 continued
Week 11 Mar 24-28	Biology of Sex and Gender (Module 7)
Week 12 Mar 31-Apr 4	Module 7 continued EXAM II Modules 5 to 7
Week 13 Apr 7-11	Emotions and Stress (Module 8)
Week 14 Apr 14-18	M8 continued and Intelligence and Cognitive Function (Module 9)
Week 15 Apr 21-25	Module 9 continued
Week 16 Apr 28-May 2	FINALS WEEK → EXAM III Cumulative Exam

Diversity and Inclusivity Statement:

Though science strives to be objective, much of science is historically built on a small subset of privileged voices. It is important to acknowledge that there may be biases in the material due to the lens with which it was written and that we can all point it out if recognizable to us.

In this class, we cover topics that can be sensitive for some of us, such as mental health, health conditions, neurological disorders, gender identity, sex, addiction, aggression, violence and so forth. My approach to these topics is based on biology and scientific publications. You should feel free to let me know if some topics may be particularly triggering for you.

My goal is to create an environment that allows students to question and to develop their critical minds in an inclusive, respectful, and trustful manner. Because I can't do this alone, I ask you to help me accomplish this by respecting and honoring the diversity of your classmates. If something said in class (by anyone including me/your instructor) makes you feel uncomfortable or concerned, I would appreciate this being brought to my attention. Please, keep in mind that learning about diverse perspectives and identities is a process. Everybody can make mistakes and learn from them.

If you would like to be addressed by a preferred/alternate name or gender pronoun, please inform me and I will do my utmost to honor your request. I prefer Dr. Vanacker, and my pronouns are she/her/hers.

Accommodations for students with disabilities:

If you have a need for disability-related accommodations or services, please inform the Resource Center for Persons with Disabilities (RCPD) and request documentation that supports accommodation needs: [Get Started | MSU - Resource Center for Persons with Disabilities](#). Reasonable and effective accommodation and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines (ex: time accommodation for exams). If you have concerns regarding this topic, please contact me. Please explore the following links for help:

Financial aid: [Students with Disabilities | Office of Financial Aid | Michigan State University \(msu.edu\)](#)

Resource center for persons with disabilities: [Welcome | MSU - Resource Center for Persons with Disabilities](#)

Sexual misconduct:

Michigan State University is committed to fostering and maintaining a safe and healthy academic, work, and living environment, which safeguards the applicable due process rights of all MSU Community Members, including Complainants and Respondents. Prohibited Conduct is inconsistent with the standards and ideals of the MSU community. MSU will take prompt and suitable action to investigate and stop Prohibited Conduct; prevent its recurrence; and, as appropriate, remedy its effects. As a teacher, I am designated as Campus Reporter by MSU and must report, by policy, incidents of Prohibited Conduct observed as well as incidents reported to me.

The Office of Institutional Equity (OIE) is responsible for enforcement of the university's policy, while the MSU Police Department handles the criminal investigation.

Sexual misconduct policy at MSU: [Relationship Violence and Sexual Misconduct Commitment – MSU Police and Public Safety](#)

Academic Integrity:

- Cheating and plagiarism on any assignment or exam will not be tolerated. This includes the use of online sources for answers to quizzes and exam questions. Evidence of cheating or plagiarism is considered academic misconduct and will result in a zero (0) score on the assigned work, referral to the Dean of Students office for disciplinary action, and the submission of an Academic Dishonesty Report (ADR). **Please make sure that the work you submit is your own work.**
- Sharing documents and resources obtained in NEU402 (worksheets, quizzes, exam questions, keys, slides, ...) with institutions, companies and websites is also not acceptable. This is a **violation of intellectual property and academic misconduct**. Students posting documents online will be traced back (it is very easy to do so). They will receive 0 credit for all shared assignments, may receive extra penalty grade according to the severity of the misconduct, and will receive an Academic Dishonesty Report (ADR). **Please note that students CAN fail a course retroactively if they lose credits due to academic misconduct (including sharing material AFTER they complete the course), whether they are about to graduate or not. This has happened in the past.**
- I use Turnitin on D2L to check for plagiarism.

Use of artificial intelligence:

The use of artificial intelligence (AI) and any virtual assistant for this course, notably for the production of the worksheets, must be disclosed. Each worksheet template contains a disclosure section, which you are required to fill out accurately. The disclosure will not impact your grade. Remember that the work you submit should be yours, and cheating during quizzes and exams will not be tolerated.

Spartan Code of Honor:

The Spartan Code of Honor states,

"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 the endeavor to build personal integrity in all that I do."

In addition, Article 2.III.B.2 of the Student Rights and Responsibilities (SRR) states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." This course adheres to the policies on academic honesty as specified in the General Student Regulations, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See [Spartan Life: Student Handbook and Resource Guide opens in new window](#) and/or the MSU Web site: [msu.edu opens in new window](http://msu.edu).)

Therefore, unless authorized by your instructor, you are expected to

- complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source.
- develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course.
- not view unauthorized posts by others to sharing websites to complete any course work in this course.

Students who violate MSU academic integrity rules may receive a penalty grade, including a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also the [Welcome | Office of the University Ombudsperson \(msu.edu\)](#) web page.)