

# Syllabus Behavioral and Cognitive Neuroscience NEU402

Fall Semester 2025

Lecture sessions

**Instructor:** Dr. Charlotte Vanacker  
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**Office:** Biomedical and Physical Science Building (BPS), 2<sup>nd</sup> 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 Tues/Thurs

**Location** **Berkey Hall Room 100**

## Course description:

This course is intended to deepen your knowledge about behavioral and cognitive neurosciences. There is 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 my main focus in this course 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](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:

OXFORD UNIVERSITY PRESS

**Oxford gives students the lowest retail price**

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

[bit.ly/3BXq9uU](https://global.oup.com/ushe/product/9780197616857?ebcode=STUDENT25&period=6M&utm_source=D2S&utm_medium=Highspot&utm_campaign=FDOC)

\*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 device that has 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://Homepage-MichiganStateUniversity.msu.edu) or [www.d2l.msu.edu](http://www.d2l.msu.edu) and log in with your MSU ID and password.

- **iClicker**

iClicker Cloud will be used to take attendance, 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 **QWQS**. You can also use the following link:



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

- 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](https://www.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 course policies, guidelines and expectations:**

#### **Lectures:**

Classes are in person. During the scheduled lecture periods on Tuesdays and Thursdays, 10:20-11:40am, we will meet in person **in room 100 in Berkey Hall**. 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 on 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 cumulative 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.
- 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 follows:

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
Attendance to 26 lecture sessions	30 points

**Total Score****500 points**

As noted above, students will accumulate points throughout the semester by completing quizzes, exams, worksheets, surveys, participating in topic discussions and participating in lecture sessions. **Important note: Missing more than 2 assignments (except for topic discussions) will result in a 5% penalty on your final grade at the end of the semester.** 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, October 2<sup>nd</sup> at 10:20am

**Exam 2:** Week 11, Thursday, November 6<sup>th</sup> at 10:20am

**Exam 3:** Week 16, Thursday December 11<sup>th</sup> at 10:00am

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 online discussions for each Module. To earn those points, you must open a discussion thread or answer an existing 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. **A zero will automatically apply once the deadline has passed and won't be modified.** 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 **one single** assignment extension as a form of 'week-late pass':

- This extension may be used only for quizzes, worksheets, or homework assignments. They may not be used for Exams or topic discussions.
- You are required to send me (Dr. Vanacker) an email telling me you wish to use your late pass.
- You must state that you are using your late pass when submitting your work, within a week of the deadline.

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

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

<b>Week 1</b> Aug 25-27	Course introduction (Module 1) and Organization of the Nervous system (Module 2)
<b>Week 2</b> Sept 1-5	Organization of the Nervous system (Module 2)
<b>Week 3</b> Sept 8-12	Perception and experience (Module 3)
<b>Week 4</b> Sept 15-19	Module 3 continued and Visual Perception (Module 4)
<b>Week 5</b> Sept 22-26	Module 4 continued
<b>Week 6</b> Sept 29- Oct 3	Module 4 continued <b>EXAM I Modules 2 to 4</b>
<b>Week 7</b> Oct 6-9	M4 and Learning and Memory (Module 5)
<b>Week 8</b> Oct 13-17	Module 5 continued
<b>Week 9</b> Oct 20-24	<b>Fall break!</b> Drug addiction and reward (Module 6)
<b>Week 10</b> Oct 27-31	Module 6 continued
<b>Week 11</b> Nov 3-7	Biology of Sex and Gender (Module 7) <b>EXAM II Modules 4 to 6</b>
<b>Week 12</b> Nov 10-14	Module 7 continued

<b>Week 13</b> Nov 17-21	Emotions and Stress (Module 8)
<b>Week 14</b> Nov 24-28	M8 continued
<b>Week 15</b> Dec 1-5	Intelligence and Cognitive Function (Module 9)
<b>Week 16</b> Dec 8-12	<b>FINALS WEEK → EXAM III Cumulative Exam</b>

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 trusting 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.

University policies

**Accommodations for Students with Disabilities** (from the Resource Center for Persons with Disabilities (RCPD): Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. 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 [rcpd.msu.edu](http://rcpd.msu.edu). Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.

**Mental Health Statement:** College students often experience issues that may interfere with academic success such as academic stress, sleep problems, juggling responsibilities, life events, relationship concerns, or feelings of anxiety, hopelessness, or depression. If you or a friend is struggling, we strongly encourage you to seek support. Helpful, effective resources are available on campus, and most are free of charge.



Meet with your academic advisor if you are struggling in multiple classes, unsure whether you are making the most of your time at MSU, or unsure what academic resources are available at MSU.

Visit <https://caps.msu.edu> for online health assessments, hours, and additional information.

Drop by Counseling & Psychiatric Services (CAPS) main location for a same day mental health screening. (3rd floor of Olin Health Center at 463 E. Circle Drive)

Call CAPS at 517-355-8270 any time, day or night.

24-Hour MSU Sexual Assault Crisis Line 517-372-6666 or visit <https://go.msu.edu/SAP>

**Religious Observances:** Courses offered by the MSU School of Social Work adhere to the MSU Religious Observance Policy:

<https://reg.msu.edu/AcademicPrograms/Text.aspx?Section=112#s548> as presented below:

It has always been the policy of the University to permit students and faculty to observe those holidays set aside by their chosen religious faith.

The faculty and staff should be sensitive to the observance of these holidays so that students who absent themselves from classes on these days are not seriously disadvantaged. It is the responsibility of those students who wish to be absent, to make arrangements in advance with their instructors. It is also the responsibility of those faculty who wish to be absent, to make arrangements in advance with their chairpersons, who shall assume the responsibility for covering their classes. Students who miss class, assignments, or exams to observe a religious holiday must be accommodated in ways that include, but are not limited to, the following:

(1) Professors and instructors should make every effort to avoid scheduling exams and oral presentations during the major holidays of religions on campus (Jewish, Muslim, Hindu, etc.). If a professor has scheduled such an exam or oral presentation, exams must be reasonably rescheduled without academic penalty.

(2) Absences may not be counted as a missed class in any course in which attendance is a measure of academic performance. Some instructors attempt to cover all reasons for student absences from required academic events such as quizzes or exams with a blanket policy, e.g., allowing the student to drop one grade or two quizzes without penalty, or allowing a certain number of “unexcused” absences during a semester. This kind of policy should not be applied to religious observances, as this penalizes religions with more holidays that require absences than others.

(3) Reasonable extensions of time must be given, without academic penalty, for missed assignments; students must be allowed to schedule presentations around such absences. Make-up work should be appropriate and not more difficult than the original assignment.

(4) It is the responsibility of those students who need to be absent to inform their instructor at least two weeks before the holiday, make arrangements in advance with their instructors, and to catch up on any material discussed and assignments given during that class period. Accommodations must never fundamentally alter an essential requirement of the course or academic program.

As Michigan State University has become increasingly multicultural, the incidence of conflicts between mandatory academic requirements and religious observances has increased. In the absence of a simple and dignified way to determine the validity of individual claims, the claim of a religious conflict should be accepted at face value. Be aware that some degrees of observance may have a more extensive period of observance. Instructors may expect a

reasonable limit to the number of requests by any one student. Some instructors attempt to cover all reasons for student absences from required academic events such as quizzes or exams with a blanket policy, e.g., allowing the student to drop one grade or two quizzes without penalty. If this is meant to extend to religious observances, the instructor should state this clearly at the beginning of the term. If instructors require make-up exams, they retain the right to determine the content of the exams and the conditions of administration, giving due consideration to equitable treatment.

**Limits to Confidentiality:** Assignments and other materials submitted for this class are generally considered confidential, pursuant to the University's student record policies. However, you 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 based on external legal obligations or that relate to the health and safety of MSU community members and others. University policy requires that I report the following information to other University offices if you share it with me:

- 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, and
- 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.

**Grief Absence Policy:** Students who experience the loss of a family member or experience emotional distress due to a similar incident should refer to the University Grief Absence Policy: <https://reg.msu.edu/ROInfo/Notices/GriefAbsence.aspx>

**Student Athletes Policy:** [https://hr.msu.edu/policies-procedures/faculty-academic-staff/faculty-handbook/student\\_athlete\\_relationships.html](https://hr.msu.edu/policies-procedures/faculty-academic-staff/faculty-handbook/student_athlete_relationships.html)

**MSU ADA Compliance Website:** [https://webaccess.msu.edu/Policy\\_and\\_Guidelines/web-accessibility-policy.html](https://webaccess.msu.edu/Policy_and_Guidelines/web-accessibility-policy.html)

### **Academic Integrity**

Spartan Code of Honor: <https://spartanexperiences.msu.edu/about/handbook/spartan-code-of-honor-academic-pledge/index.html>

**Academic Honesty:** 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." In addition, the (insert name of unit offering course) adheres to the policies on academic honesty as specified in General Student Regulations 1.0, 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](#) and/or the MSU website ([www.msu.edu](http://www.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. You are expected to 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. Also, you are not authorized to use the [www.allmsu.com](http://www.allmsu.com) Web site 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 [Academic Integrity](#) webpage.)

**Consequences of Academic Misconduct for Instructors and Students:** If your instructor believes you have committed an act of academic misconduct, s/he may give you a penalty grade, which is defined as any grade based on a charge of academic misconduct. A penalty grade may include, but is not limited to, a failing grade on an assignment or in the course. That's up to each instructor. When this occurs, the [Integrity of Scholarship and Grades](#) policy (ISG) requires your instructor to report the academic misconduct to your dean through an electronic Academic Dishonesty Report. The form, which will end up in your student folder, also asks if your instructor wants to request an academic disciplinary hearing to impose sanctions in addition to the penalty grade. Additional sanctions include probation, suspension from your program or the University for a designated time. Your dean may also call for this hearing independent of your instructor. Deans usually call for disciplinary hearings for repeat offenders or in cases involving egregious acts of academic misconduct. The ISG policy requires first-time offenders to complete an Academic Integrity Education Program, which is administered by the Associate Provost for Undergraduate Education or the Dean of The Graduate School.

**Plagiarism Will Not be Tolerated.** It is defined below by the University (and may be viewed at <https://ombud.msu.edu/sites/default/files/content/Plagiarism-What-is-it.pdf>)

This message serves to clarify my position on plagiarism and set clear expectations and consequences for all work in this course. I have a zero-tolerance policy toward plagiarism. Academic honesty means using your own words to communicate an idea. Therefore, changing a few words of another's text and/or rearranging words from another source constitutes plagiarism. If you paraphrase material, you must still cite and reference the source. (To paraphrase means to restate a text or passage in other words, often to clarify meaning. Paraphrasing is a restatement of an idea, not rearrangement of specific words.) If you copy material exactly, you must use quotation marks and then cite and reference the source. One sentence, two sentences, a paragraph, or an entire paper – copying constitutes plagiarism/cheating. Those papers will automatically receive a 0.0 and the student will be recommended for academic review.