

Syllabus Behavioral and Cognitive Neuroscience

NEU402

Spring Semester 2023

Lecture sessions

Instructor: Dr. Charlotte Vanacker
Email: vanack40@msu.edu
Office: BPS, 2nd floor, Room 2201G
Office hours: Thursday 2-4pm **in-person only**. For more extended conversations and for zoom meetings, please request an appointment outside of office hours.
Zoom link: <https://msu.zoom.us/j/9459826115>
Meeting ID: 945 982 6115

Teaching Assistant: Abigail Schuch (schuchab@msu.edu)
Office hours: Thursday 9-10am
Zoom link: <https://msu.zoom.us/j/97288413173>
Meeting ID: 972 8841 3173
Passcode: 111847

Lecture location: Business College Complex Room N106
Lecture time: 10:20-11:40am T/R

Course description:

This course is intended as an introduction to behavioral and cognitive neurosciences with an appreciation for the biological basis of everyday behaviors, such as perceiving the environment, learning, maintaining internal state, and thinking. We will also talk about emotions and cognition. 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, therefore we may use some psychological approaches during this class but 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 brain and behavior.

Prerequisite: 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

5. Identify the major neurotransmitters and discuss the impact of each on behavior and diseases.

Required 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* (9th Edition). Oxford University Press Academic US, 2020.

Please access the OUP website directly via this link:

<https://global.oup.com/ushe/product/behavioral-neuroscience-9781605359076?q=breedlove&cc=gb&lang=en>

And apply the discount code: **STUDENT23** at checkout

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
- 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 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 are forwarded to your main MSU email address or any email you use on a daily basis)
- Grades

To access D2L go to [Homepage - Michigan State University \(msu.edu\)](https://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 understand what you know, give everyone a chance to participate, and increase how much you learn in class. This will also provide you with feedback on how well you are comprehending course concepts, 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 **MVCQ**
- 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 are still many unknowns and a level of uncertainty as to how the pandemic 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 BCC Room N106. Participation in these meetings is highly encouraged but not 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-labs activities that you will be required to complete before attending the lectures (mostly videos and readings posted on D2L). 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. Students won't be able to attend lectures virtually, but lectures may be recorded and available on D2L later. Students will be asked to complete an online quiz and an online worksheet each week and will receive credit for the completion of both post-class work. Three online 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: If you are sick, have an elevated body temperature (fever) or feel common symptoms associated with COVID-19, do NOT attend in-person lectures.

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 any changes in your situation or needs during the semester
- Read and complete all assigned material by the posted deadlines.
- Adhere to the 'Environmental health and safety' guidelines: [COVID-19 | Environmental Health & Safety | Michigan State University \(msu.edu\)](#)

Course Grading:

You grade for NEU402 will be calculated as follow:

Lecture Grades:

12 Quizzes (15 points each)	240 points
12 Worksheets (10 points each)	120 points
3 Exams (50 points each)	150 points
Other assignments	40 points

Total Score

550 points

As noted above, students will accumulate points through the semester by completing quizzes, exams and worksheets. The points will be converted to the percentage out of 100 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 fully remote, however, they will be accessible during a specific time. It is the student's responsibility to access and complete the Exam during the open period of time announced and to submit it properly. 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 which 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, February 13-17

Exam 2: Week 12, March 27-31

Exam 3: Finals week (week 17), May 1-5

Day of exam Protocol

The exams will consist of multiple choice, true & false, matching or short answer questions. Exams will be given through Educat. This paper will be turned into a proctor prior to exiting the room once you have completed the exam. Any students arriving late to the exam must complete the exam in the time remaining.

Make-up Exams

Exams will be open for at least 24 hours, 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.

Known conflicts include, but are not limited to: military duty, athletic travel, court date, 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 in 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. 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 12 quizzes in total over the semester. There will be one quiz per week except on Exam weeks. These assignments are 10x 1.5-point questions (15 points total) related to the topic of the week. Quizzes will open on the following Monday morning and will close on the following Tuesday, at 11:59 pm. This will give you more than 24 hours to complete them. The questions you will find in quizzes may be challenging, but they will be open notes, and you will have two attempts before submitting them. The completion of the weekly worksheet will help you study for the quizzes.

Worksheets

There will be 12 worksheets in total over the semester. There will be one worksheet per week except on Exam weeks. Worksheets are documents that help you walk through class activities and content. They will help you analyze the material and study for the quizzes. Your instructors **WON'T** formally grade your worksheets, it is work that you are doing for yourself, **HOWEVER**,

the completion and submission of the worksheet before the deadline each week will make you earn 10 points for each worksheet. Worksheets that are considered poorly completed (Meaning no sentences, many mistakes, a poor understanding of the topic, or partial completion) will receive either half the points or no points. Worksheets will be due for submission on Fridays at 11:59 PM. The keys for the worksheet will be posted on D2L after the deadline.

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. Typically, assignments are graded several days after a due date, so if you wait to receive an alert of zero points for a grade entered one week after the deadline, it will be too late to receive any credit for it.

The exception to this policy is that each student is granted **three** assignment extensions:

- Two 24-hour extensions
- One 1-week extension
- These extensions may be used only for quizzes, worksheets, or homework assignments. They may not be used for peer reviews or skills assessments.
- When you upload/submit the assignment to D2L, you must add a note that states "Using one of my (24-hour or 1-week) free extensions".
- You are required to send your assistant instructor an email telling them when you have completed a late assignment so that they are aware that it is ready to grade.
- 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 free extension 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 9-15	Course introduction (Module 1) and Organization of the Nervous system (Module 2)
Week 2 Jan 16-22	Organization of the Nervous system (Module 2)
Week 3 Jan 23-29	Perception and experience (Module 3)
Week 4 Jan 30-Feb 5	Perception and experience (Module 3) and Learning and Memory (Module 4)
Week 5 Feb 6-12	Learning and Memory (Module 4)
Week 6 Feb 13-19	Drug addiction and reward (Module 5)

EXAM I on Part I

Week 7 Feb 20-26 Drug addiction and reward (Module 5)

Week 8 Feb 27-Mar 5 Maintaining internal state (Module 6)

Mar 6-Mar 12 *Spring break!*

Week 10 Mar 13-Mar 19 Maintaining internal state (Module 6) – special focus on energy balance

Week 11 Mar 20-Mar 26 Biology of sex and gender (Module 7)

Week 12 Mar 27-Apr 2 Emotions – fear, aggression and violence (Module 8)

EXAM II on Part II

Week 13 Apr 3-Apr 9 Emotions – fear, aggression and violence (Module 8) and Emotions – Stress (Module 9)

Week 14 Apr 10-Apr 16 Emotions – Stress (Module 9)

Week 15 Apr 17-Apr 23 Intelligence and Cognitive functioning (Module 10)

Week 16 Apr 24-Apr 30 Intelligence and Cognitive functioning (Module 10)

Week 17 May 1-May 7 **FINAL WEEK → EXAM III on Part III**

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.

My goal is to create an environment that allows students to question and to develop their critical mind in an inclusive, respectful and trustful manner. Because I can't do this alone, I ask you 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 it.

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 the faculty member outside of class. 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 NMU 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 quiz and exam questions. Evidence of cheating or plagiarism will result in a zero (0) score on the assigned work, and referral to the Dean of Students office for disciplinary action. **Please make sure that the work you submit is your own work.**

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](#).)

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 [Academic Integrity opens in new window](#) web page.)