

PSY 330: Foundations of Behavioral Neuroscience

Course Syllabus, sections 5 & 7

Grand Valley State University, Department of Psychology

Winter 2023

Instructor Information

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Office Hours: Tuesday/Thursday 4:00 p.m. - 6:00 p.m. or by appointment.

How to contact me: The best way to contact me is via e-mail. I will do my best to reply within 24 hours to e-mails received during business hours (Monday-Thursday, 9:00 a.m. - 5:00 p.m.). I will be in limited contact during weekends, and I won't be able to reply until the following Monday. For urgent communication, make sure to write "URGENT" in the subject line of the e-mail, and I will do my best to reply as soon as possible.

Feedback. Over the course of the semester, you are welcome to give me your feedback about the course. If you have any doubt or concern, please feel free to contact me by either sending an e-mail or by scheduling an appointment.

Course Information

Credits: 3

Prerequisites: PSY 101.

Course Format: Traditional (face-to-face). Material presented in class lectures and discussions will reflect textbook material; however, not all in-depth information in the textbook will be presented in class. You will be responsible for material that is both covered in lecture and assigned from the textbook.

Class Meetings Location & Time:

- **PSY 330 - 5:** ASH 2310, T/R 2:30 p.m. - 3:45 p.m.
- **PSY 330 - 7:** LMH 114 T/R 10:00 a.m. - 11:15 a.m.

Course Overview. The course is designed to provide a foundational knowledge of the neurobiological determinants of behavior. Over the course of the semester students will develop a fundamental understanding of:

- How the brain works, from molecules to neurons to complex neural circuits.
- The neurobiological mechanisms involved in the regulation of fundamental psychophysiological processes such as perception, hunger, sleep, cognition, emotion, and motivation.

The course will be divided into 4 learning modules. Each module will cover 3-6 chapters of the textbook. In the first module (chapters 1-5) we will discuss the foundations of behavioral neuroscience, including a brief historical perspective, structure and functions of the neuron, functional anatomy of the brain, psychopharmacology, and common research strategies in behavioral neuroscience. In the second module (chapters 6-10, 12) we will discuss the neural bases of sensation, control of movement, homeostatic processes (sleep, hunger etc.) and reproductive behaviors. In the third module (chapters 11, 13-14) we will discuss the brain mechanisms involved in the regulation of emotions, cognition, and human language. Finally, in the fourth and last module (chapters 15-17), we will discuss some of the most common brain disorders, with a special focus on neurodegenerative disorders (e.g., Parkinson, Alzheimer), affective disorders (e.g., depression, schizophrenia, bipolar disorder), anxiety disorders and substance abuse.

Course Objectives. By the end of this course, you will have a fundamental understanding of the brain organization and functions, as well as the relationship between brain processes and behavioral outcomes. You will learn about the current research strategies used by neuroscientists to investigate the relationships between brain and behavior. You will develop an appreciation of the critical thinking and problem-solving skills needed for conducting a scientific experiment and the potential to use such knowledge to enhance your future

professional goals. You will have a deeper understanding of animal and human behavior, including how and why we feel certain emotions, how we handle stress, how we learn new information and how we remember the past and, in general, why we behave the way we behave. Last, you will have a better understanding of what it means when the brain fails and what is the cost in terms of mental health problems.

How to succeed. To do well in this course, you will have to:

- Read the appropriate chapters in the textbook and the corresponding lecture slides.
- Complete the course assignments (i.e., exams) and enrichment activities (see details below). Exams will contain a mixture of content from the textbook and from class lectures. Therefore, although I will not take class attendance, I strongly recommend you attend classes.
- Make sure to check the course Blackboard page frequently to keep up with announcements, lecture slides, exams, and additional materials/info.

Required Materials

The following materials are required:

- **Textbook:** Carlson, N.R., Birkett, M. (2020) *Foundations of Behavioral Neuroscience* (10th edition). ISBN: 978-0-13-544912-7. Your course is participating in the GVSU SAVE program. This means your course material will be delivered to you via a link on the course's Blackboard page. The course is now live for the semester and you may access your course material at this time. You should have received a "Welcome Email" from Verba/VitalSource that explains the GVSU SAVE program. You have been charged for your course material on your GV student account. The deadline to opt-out of the SAVE program is Friday, Jan. 20th for normal 15-week courses. Please be aware, if you opt-out you will be responsible for purchasing the required course material on your own. For the instructions to opt-out, and more information about the program visit the GVSU SAVE website at: <https://lakerstore.gvsu.edu/gvsusave>. If you have any questions or are experiencing any issues, please contact lakersave@gvsu.edu.
- **Internet Access:** All relevant content, such as announcements, lecture slides, assignments, grades, and other additional information will be posted on the course Blackboard page, available at <http://mybb.gvsu.edu/>.
- **Computer/Tablet/Smartphone:** Blackboard runs on Windows, Linux, iOS, Android, or any other electronic device with an up-to-date web browser.
- **PDF Reader:** Some material in this course may be presented in PDFs. To view these materials, you will need a [PDF reader](#).
- **Word Processor:** You will need a word processing software (e.g., Microsoft Office, Google Docs, etc.) to complete some course assignments. [Office 365](#) is available for free for personal computers/devices for qualifying GVSU students.

Methods of Evaluation

Grades will be determined by your scores on two types of assessment:

1. **Exams.**
2. **Literature Review.**

You can find below a breakdown of the points assigned and a brief description of the assessments. Further details will be provided in class.

Assignment	Points	%
Midterm Exam 1	60	18.75
Midterm Exam 2	60	18.75
Midterm Exam 3	60	18.75
Final Exam	60	18.75
Literature review	80	25
Total	320	100

Exams (240 points). The course will have a total of four exams (3 mid-terms + 1 final), one for each learning module. The final exam will not be cumulative and will only cover the fourth learning module. Each exam consists of 60 multiple choices or fill in the blank questions. The questions will be based on the lectures and on the corresponding book chapters. The exams will be available on Blackboard, at least seven days prior to the due date. You can take the exam anytime during this window. Once you start, the exam can't be stopped and resumed, and must be completed within 50 minutes. During each exam, you may access lecture slides, textbook, notes, and the Blackboard page of the course. However, having 50 minutes to answer 60 questions means you must study for each exam, as you will not have time to look up the answers. Each exam is worth 60 points, for a total of 240 points (80% of the final grade).

Literature Review (80 points). For this assignment you will have to write a mini literature review on a Behavioral Neuroscience topic. A literature review is an overview of the most significant accomplishments relative to a specific field of research. Literature reviews summarize and evaluate previously published works, in order to:

- Provide a summary of the current status of knowledge on a topic.
- Clarify and integrate the empirical evidences coming from different studies.
- Identify strengths and weaknesses of the current research.
- Lay the groundwork for guiding future research.

The purpose of this assignment is to introduce students to reading and criticizing research papers and to stimulate the development of critical thinking skills and independent learning

strategies. Students will choose a topic of interest related to any of the topics covered in class and will have to find and read a literature of ~5 peer-reviewed journal articles that cover a specific aspect of a current area of investigation and write a mini review (2000 words max). More info will be available on the course Blackboard page.

Grading Scale: Final grades will be determined at the end of the semester by calculating the total points accumulated. Grading cutoff is as follows:

Percentage	Grade
93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
65-69%	D+
60-65%	D
<=59%	F

Tentative Schedule

Note: The instructor reserves the right to change the contents of this syllabus. Students will be given notice of relevant changes in class, through a Blackboard announcement, or through GVSU e-mail.

Date	Topics
1/10	Lecture 1: Syllabus & Introduction
1/12	Lecture 2: The Nervous System I (Chapter 2)
1/17	Lecture 3: The Nervous System II (Chapter 2)
1/19	Lecture 4: Neuroanatomy I (Chapter 3)
1/24	Lecture 5: Neuroanatomy II (Chapter 3)
1/26	Lecture 6: Psychopharmacology I (Chapter 4)
1/31	Lecture 7: Psychopharmacology II (Chapter 4)
2/2	Lecture 8: Research Methods in Neuroscience I (Chapter 5)
2/7	Lecture 9: Research Methods in Neuroscience II (Chapter 5)
2/9	Lecture 10: The Visual System I (Chapter 6)
2/14	Lecture 11: The Visual System II (Chapter 6)
2/16	Lecture 12: Audition, Somatosensation, Olfaction & Gustation (Chapter 7)
2/19	Midterm Exam 1 (Chapters 2-5 of the textbook) due at 11:59 p.m.
2/21	Lecture 13: Control of Movement I (Chapter 8)
2/23	Lecture 14: Control of Movement II (Chapter 8)
2/28	Lecture 15: Sleep I (Chapter 9)
3/2	Lecture 16: Sleep II (Chapter 9)
3/7-9	Spring Break
3/14	Lecture 17: Emotion I (Chapter 11)
3/16	Lecture 18: Emotion II (Chapter 11)
3/19	Midterm Exam 2 (Chapters 6-9 of the textbook) due at 11:59 p.m.
3/21	Lecture 19: Learning & Memory I (Chapter 13)
3/23	Lecture 20: Learning & Memory II (Chapter 13)
3/28	Lecture 21: Human Language I (Chapter 14)
3/30	Lecture 22: Human Language II (Chapter 14)
4/4	Lecture 23: Neurological Disorders I (Chapter 15)
4/6	Lecture 24: Neurological Disorders II (Chapter 15)
4/9	Midterm Exam 3 (Chapters 11, 13-14 of the textbook) due at 11:59 p.m.
4/11	Lecture 25: Psychiatric Disorders I (Chapter 16)
4/13	Lecture 26: Psychiatric Disorders II (Chapter 17)
4/18	Lecture 27: The Hard Problem of Consciousness
4/19	Literature Review Paper Submission Deadline
4/20	Lecture 28: Conclusions
4/28	Final Exam (Chapters 15-17 of the textbook) due at 11:59 p.m.
4/29	End of Semester
5/2	Final Grades

Class Policies

GVSU Email and Course Communications. Students are responsible for all communications sent via Blackboard and to their GVSU email accounts. GVSU student email can be accessed by visiting: mail.gvsu.edu and Blackboard at: mybb.gvsu.edu.

Assignments and Assessments. Each student is required to complete all learning activities by the due date deadline, as indicated in Blackboard. No learning activities or assignments are accepted late. All assignments, graded discussions, quizzes, exams etc. are submitted electronically to Blackboard. There are several available computer labs (gvsu.edu/it/lab-hours-66.htm) available for you to complete course work.

Attendance. A large part of the learning in this course comes from not only reading, but attending class and participating in class activities. Therefore, it is to your benefit to take advantage of these learning opportunities. Please note that some exam questions may refer to material covered only in class. You are responsible for all material covered in class whether you attend or not. Be sure to visit the Blackboard page of the course to locate lecture materials you have missed and contact a peer to get more detailed notes. See the university's attendance policy in the online catalog for more information.

Classroom Etiquette. To ensure that everyone has a positive experience, please keep in mind the following:

- Please put your cellphones on silent (not vibrate) for class. Also, please make every effort not to text in class. If it becomes distracting, I will ask you to put your phone away and may need to speak with you privately after class. Although it is easy to become distracted by computers, tablets, and cell phones in class, do try your best to pay close attention to class instruction. This will make you a better classmate and a more successful student.
- Please arrive to class on time. I will not be able to repeat material if you come in late. After class, be sure to ask a classmate to update you on what you missed.
- You are in a diverse college setting, where your fellow classmates may not share your background, opinions, or rate of learning. Please respect these differences in your classmates and refrain from engaging in disrespectful behavior (e.g., eye rolling, smirking, or teasing). Please also avoid personal conversation during class instruction, as this is both disrespectful and disruptive to your classmates.

University Policies

Last Day to Drop. The last day to drop with a “W” is March 11. Students must initiate drop through Registrar (gvsu.edu/registrar/course-withdrawals-6.htm).

Caring for Students . Your health and your family's health should be your priority. If you are dealing with illness, sick family members, travel difficulties, a bad internet connection, increased anxiety, childcare challenges, or any other issues, please reach out and we will figure out accommodations.

Mental Health. Mental health concerns, including overwhelming stress, excessive worry, difficulty participating in daily activities, and changes in mood, appetite, or sleep patterns can interfere with your academic performance. College student surveys report that roughly 1 out of 3 students screen positive for a current mental health concern ([Healthy Minds Study](#)). GVSU values your health and wellness and provides services to support your mental health. If you would like mental health support or are concerned for another member of our campus community, reach out to the [University Counseling Center](#) for free resources, self-help options, and services. Also, visit [Campus Recreation & Wellness](#) for additional health and wellness programming.

Disability Support Resources. If you need accommodations because of a learning, physical, or other disability, please contact your instructor and Disability Support Resources (<https://www.gvsu.edu/dsr/>). Furthermore, if you have a physical disability and think you will need assistance evacuating this classroom and/or building in an emergency situation, please make me aware so I can develop a plan to assist you. Assistive technology computers are available in many GVSU computer labs (<https://www.gvsu.edu/dsr/accessible-computer-labs-68.htm>). Also, Blackboard has a commitment to accessibility statement (blackboard.com/accessibility.aspx) providing information about accessibility in all of their products.

Student Code of Conduct. Standards of conduct are established in order to generate an atmosphere in which the goals and objectives of the institution can flourish. Individual rights can only be ensured with acceptance of individual and group responsibilities and respect for the rights of others. Individuals attending GVSU automatically place themselves under the applicable rules and regulations of the institution.

Academic Integrity. All course assignments, learning activities, and assessments, are to be authored and completed individually, by the student themselves. Failure to be able to correctly cite, explain and defend your submissions is an indication that it is not your work. While assisting another student in learning is part of the academic process, completing the assigned work as a team or group effort (with the exception of group projects as assigned by the instructor) is not allowed and will be considered Academic Dishonesty. No Academic Dishonesty

will be tolerated and such activity may result in failure of a specific assignment, an entire course, or, if flagrant, dismissal from Grand Valley. For further information see the Student Code, and the consequences include penalties established by GVSU's Academic Integrity policy (<https://www.gvsu.edu/conduct/academic-integrity-14.htm>).

Plagiarism. Any ideas or material taken from another source for either written or oral presentation must be fully acknowledged. Offering the work of someone else as one's own is plagiarism. The language or ideas taken from another may range from isolated formulas, sentences, or paragraphs to entire articles copied from books, periodicals, speeches, or the writing of other students. The offering of materials assembled or collected by others in the form of projects or collections without acknowledgment is also considered plagiarism. Any student who fails to give credit in written or oral work for the ideas or materials that have been taken from another is guilty of plagiarism. Such activity may result in failure of a specific assignment, an entire course, or, if flagrant, dismissal from Grand Valley. For further information see the [Student Code](#).

Campus Emergencies. In case of fire, immediately proceed to the nearest exit during a fire alarm. Use a staircase, not an elevator. To sign up for campus emergency alerts and to access more information, please visit the GVSU Emergency website (<https://www.gvsu.edu/emergency>).

Learning Resources. See the "Help & Support" section of Blackboard for help with using Blackboard; a link to the Blackboard Student Mobile App and Blackboard IM; GVSU computer lab hours and locations; GVSU IT Help Desk (<https://www.gvsu.edu/it/helpdesk/>); accessibility and Disability Support Resources (<https://www.gvsu.edu/dsr/>).

Changes to the Syllabus. [The instructor reserves the right to change the contents of this syllabus. Students will be given notice of relevant changes in class, through a Blackboard announcement, or through GVSU e-mail.](#)

Psych Friends. If you feel you could use some extra help/guidance/support in any academic domain or for your well-being, please consider scheduling an appointment with a mentor through Psych Friends. Psych Friends mentors are upper-level undergraduate peer mentors who are trained to provide support in many areas including: effective study and time management techniques, exam preparation and reflection skills, comprehension of the psychology and behavioral neuroscience major requirements, tips for engaging in the field, strategies for education continuation, methods for maintaining physical and mental health. Schedule an appointment here: <https://www.gvsu.edu/navigate>. Questions? Email psychfriends@gvsu.edu.

This course is subject to the GVSU policies listed at <http://www.gvsu.edu/coursepolicies/>.