

PSB 3340 Behavioral Neuroscience

Fall 2024

Section #5735; Class #16686 – 3 credits
class time: Tuesday period 3 - 4, 9:35 - 11:30 a.m.
Thursday period 3, 9:35 - 10:25 a.m.
room: Pugh Hall room 170
3 credits

In this course, we will use the most complex object in the known universe, to study the most complex object in the known universe. You are invited to come along and explore the human brain. I promise, it will be an exhilarating adventure.

Professor: Darragh P. Devine, Ph.D.
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phone: 352-273-2174

office hours: Wednesday 12:50 - 1:40 p.m. and Friday 11:45 a.m. - 12:35 p.m. (or by appointment)

Wednesday office hours are in-person in the Psychology Building, room PSY 337

Friday office hours are online at: Meeting ID: 967 6582 3937, Passcode: PSB3340

Teaching Assistants: Cherita Clendinen, cclendinen@ufl.edu

office hours: Thurs 12:30 - 2:30 p.m. (or by appointment), Psych Building room 231-C

Katherine Driver, k.driver@ufl.edu

office hours: Tues 12:00 - 2:00 p.m. (or by appointment), Psych Building room 311-H

Saurabh Ranjan, saurabh.ranjan@ufl.edu

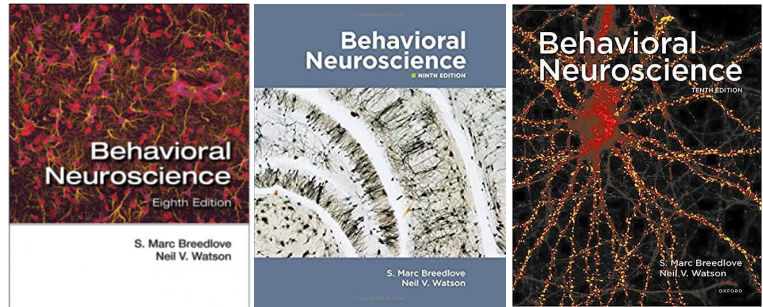
office hours: Mon 10:00 a.m. - 12:00 p.m. (or by appointment), Psych Building room 236-D

Required Text: *Behavioral Neuroscience*, 8th, 9th, or 10th ed. (2017, 2020, or 2023), by S. M. Breedlove and N. V. Watson (ISBN # 978-1605356426, ISBN# 978-1605359076, or ISBN# 978-0197616857)

COURSE COMMUNICATIONS: If students have questions about the website, general course content, or other online materials, they should consult the syllabus and the supporting materials in the START HERE module on the Canvas website.

Dr. Devine and the Teaching Assistants will be available to answer questions during office hours, or through e-mail. Any e-mailed questions will be answered within approximately 24-48 hours (questions on the weekend may wait until the beginning of the following week). In addition, students are encouraged to post questions on the bulletin board under the "Discussions" tab on the course Canvas website. This forum is especially useful for general questions about the course content, or for communication between students. Other students are also encouraged to get involved in Discussions after any postings.

BIOLOGICAL SCIENCES GENERAL EDUCATION SUBJECT AREA OBJECTIVES: This course confers General Education credit for Biological Sciences (B). Biological science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the life sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern biological systems. Students will formulate empirically-testable hypotheses derived from the study of living things, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments. More information on General Education Objectives and Outcomes can be found at <https://catalog.ufl.edu/UGRD/academic-programs/general-education/#objectivesandoutcomestext>



COURSE DESCRIPTION: The purpose of this course is to provide a broad background in the neural basis of behaviour. What is the brain made of? How is it put together? What do neurons do? How do neurons communicate? How are behaviours regulated? How can the brain malfunction? This is an in-depth introductory course, which is designed for students who have a real interest in learning about the brain and behavior. This includes students with interests in Psychology, Biology and other bio-medical sciences.

In this course, students will:

1. discover the cells and structures that make up the nervous system, learn the manner in which these elements interact with other body systems, and identify the roles they play in information processing in the brain.
2. develop knowledge about the mechanisms by which neurons communicate, and the changes that occur in neuronal activities during learning
3. learn the manner in which drugs, hormones, and other signals modify the functions of neurons
4. learn the fundamental neurobiological principles of sensory processing, emotional regulation, and motor function
5. learn the neurobiological mechanisms that drive normal motivations to eat, drink, sleep, and reproduce, as well as abnormal motivation to abuse drugs

Lectures and reading material will emphasize the cellular biology, anatomy, physiology, and development of the nervous system, and the neurobiology of sensation and motor function.

This course is required for students in the Behavioral and Cognitive Neuroscience track. It is also the pre-requisite for all 4000-level PSB courses (e.g. PSB4240, PSB4342, PSB4434, PSB4810, PSB4934). Students cannot take both PSB 3002 and PSB 3340.

SUBJECT AREA STUDENT LEARNING OUTCOMES:

Content: Students will identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method; the major scientific discoveries and the impacts on society and the environment; and the relevant processes that govern biological and physical systems.

Critical Thinking: Students will formulate empirically-testable hypotheses derived from the study of physical processes or living things; apply logical reasoning skills effectively through scientific criticism and argument; and apply techniques of discovery and critical thinking effectively to solve scientific problems and to evaluate outcomes.

Communication: Students will communicate scientific knowledge, thoughts, and reasoning clearly and effectively.

PREREQUISITE KNOWLEDGE and SKILLS: Students who register for this course are required to have an introductory course in Biology (BSC2010 or equivalent). Fundamental knowledge in Introductory Psychology (e.g. PSY2012) is helpful, but not required. The course is self-contained - meaning that everything you need is contained within the course materials. Accordingly, this course is appropriate for students who have a broad interest in Psychology and the biological basis of behaviour.

ATTENDANCE POLICY: Students are expected to attend all classes, and frankly, absence from classes will cause a student to miss information that will be tested on the quizzes and exams. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> .

GRADING: This course will have 11 short online quizzes (one per chapter), a research requirement, and 3 in-person exams, and one final exam.

Each of the online quizzes will have 10 multiple-choice (MC) questions and will cover only the material in the chapter for which the quiz is assigned. The quizzes will count for a total of 36% of the final grade (4% per quiz, counting the best 9 quizzes; see quiz/exam policy, below).

The research assignment will count for 4% of your final grade (see "Research Participation" below, and detailed instructions posted in the "Start Here" module on the Canvas website).

Each in-person exam will have 40 MC questions. Each of these exams will cover only the text and lecture material from the chapters that have most recently been discussed in class (i.e. exam 1 will cover material from the beginning of the course up to the time of the exam; exam 2 will cover material assigned after exam 1; and exam 3 will cover material assigned after exam 2). The exams will count for a total of 60% of the final grade (20% per exam).

The final exam will have 40 MC questions, will be comprehensive, and can replace one missed exam or one exam on which you did poorly.

QUIZ and EXAM POLICY: All quizzes are online, and can be found linked in the Canvas course website. Each online quiz is available while the material is being covered in class, until its due date and time. Then, it will disappear, along with the opportunity to get points for it. Each exam will only be available in class on the dates specified in this syllabus. The final exam will be comprehensive.

If you complete all quizzes, your best 9 out of 11 quizzes will count toward your final grade. If you miss one or two quizzes, your best remaining 9 quizzes will count, and there is no additional penalty. If you miss more than two quizzes, you will be given a score of 0 (zero) on the additional missed quizzes, and those grades will be included in the calculation of your final grade.

The quizzes are not proctored, and you can use textbooks or other resources to find the answers to the questions, but each quiz is limited to 15 minutes. It will close at the end of 15 minutes.

It is advised that students complete all quizzes early, in order to avoid any potential problems with technology. If you encounter technical difficulty, you must contact the UF help desk (note that the phone and e-mail support is available after hours 24 hrs/day, except holidays – for further information see <http://helpdesk.ufl.edu/hours-of-operations/>). Information for getting technical help is provided under “getting help”, below.

The three exams and the final exam are in-person, in our regular classroom. You will not be allowed to use the textbook, notes, or any additional materials when you take the exams or the final exam. All three examinations must be completed, and the grades for all three exams will be included in the calculation of your final grade. If you take all the three regular exams and are satisfied with your grade, you may skip the final exam. If you miss an exam, or if you do poorly on an exam, you can drop that exam and take the final exam to replace it. In this case the better exam score (regular exam or replacement) will count.

RESEARCH PARTICIPATION: The same research participation requirement as in the General Psychology course has been extended to all 3000 level psychology courses. You will have the option to participate in research experiments through the SONA platform (Option 1) or to complete critical analysis papers (Option 2). Please see the Research Requirements link in the “Start here” module of the course website for more information.

The grading scheme is as follows:

| Score (%) | Grade | Grade Points | Score (%) | Grade | Grade Points |
|-----------|-------|--------------|-----------|-------|--------------|
| 93-100 | A | 4.00 | 73-76 | C | 2.00 |
| 90-92 | A- | 3.67 | 70-72 | C- | 1.67 |
| 87-89 | B+ | 3.33 | 67-69 | D+ | 1.33 |
| 83-86 | B | 3.00 | 63-66 | D | 1.00 |
| 80-82 | B- | 2.67 | 60-62 | D- | 0.67 |
| 77-79 | C+ | 2.33 | <60 | E | 0.00 |

A minimum grade of C is required for General Education (Biological Science) credit.

Additional information on current UF policies for assigning grade points can be found at <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/> .

ATTENDANCE POLICY: Students are expected to attend all classes, and frankly, absence from classes will cause a student to miss information that will be tested on the quizzes and exams.

COURSE SCHEDULE:

For critical semester dates see <http://www.registrar.ufl.edu>

The chapters we will cover in this course will provide a solid foundation in Behavioural Neuroscience, which will prepare students for more advanced courses that are offered by faculty of the Behavioral and Cognitive Neuroscience program. Those more advanced courses include courses on the neurobiology of additional sensory systems (hearing, taste and smell), the neurobiology of drug addiction, the neurobiology of emotion, the neurobiology of stress, developmental neurobiology, the neurobiology of learning and memory, etc.

| Approx. Dates | Chapter and Topic |
|----------------------|---|
| Aug 22 - 27 | Chapter 1: Biological Psychology: Scope and Outlook <i>Quiz for chapter 1, due Friday Aug 30 at 11:59 pm</i> |
| Aug 29 - Sept 5 | Chapter 2: Functional Neuroanatomy: The Nervous System and Behavior <i>Quiz for chapter 2, due Friday Sept 6 at 11:59 pm</i> |
| Sept 10 - 17 | Chapter 3: Neurophysiology: Generation, Transmission, Integration of Neural Signals <i>Quiz for chapter 3, due Wednesday Sept 18 at 11:59 pm</i> |
| Sept 18 | <i>optional review session (12:50 - 1:40, room TBA)</i> |
| Sept 19 | Exam #1: Chapters 1 - 3, and all material covered in lectures |
| Sept 24 - Oct 1 | Chapter 4: Neurotransmitters and Neuropharmacology <i>Quiz for chapter 4, due Friday Oct 4 at 11:59 pm</i> |
| Oct 3 - 8 | Chapter 5: Hormones and the Brain <i>Quiz for chapter 5, due Friday Oct 11 at 11:59 pm</i> |
| Oct 10 - 15 | Chapter 6: Evolution of the Brain and Behavior <i>Quiz for chapter 6, due Friday Oct 18 at 11:59 pm</i> |
| Oct 17 - 22 - | Chapter 7: Lifespan Development of the Brain and Behavior <i>Quiz for chapter 7, due Wednesday Oct 23 at 11:59 pm</i> |
| Oct 23 | <i>optional review session (12:50 - 1:40, room TBA)</i> |
| Oct 24 | Exam #2: Chapters 4-7, and all material covered in lectures |
| Oct 29 | Chapter 8: General Principles of Sensory Processing <i>Quiz for chapter 8, due Friday Nov 1 at 11:59 pm</i> |
| | We will skip chapter 9 |
| Oct 31 - Nov 7 | Chapter 10: Vision: From Eye to Brain <i>Quiz for chapter 10, due Friday Nov 8 at 11:59 pm</i> |
| Nov 12 - 14 | Chapter 11: Motor Control and Plasticity <i>Quiz for chapter 11, due Friday Nov 15 at 11:59 pm</i> |
| Nov 19 - 21 | Chapter 14: Biological Rhythms, Sleep, and Dreaming <i>Quiz for chapter 14, due Friday Nov 22 at 11:59 pm</i> |
| Dec 2 | <i>optional review session (12:50 - 1:40, room TBA)</i> |
| Dec 3 | Exam #3: Chapters 8, 10, 11, and 14, and all material covered in lectures |
| Dec 13 (10:00-12:00) | Final Exam: Chapters 1-8, 10, 11, and 14, and all material covered in lectures |

COURSE EVALUATIONS: Students are expected to provide professional and respectful feedback on the quality of this course by completing course evaluations online via GatorEvals. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, or in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. Summaries of course evaluation results [are available to students here](#).

GETTING HELP: For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

** Any requests for special consideration due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail Dr. Devine within 24 hours of the technical difficulty if you wish to request any special considerations.

Other resources are available at <http://www.distance.ufl.edu/getting-help> for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

ADDITIONAL SUPPORT FOR STUDENTS WITH DISABILITIES: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. [Click here to get started with the Disability Resource Center](#). It is important for students to share their accommodation letter and discuss their access needs, as early as possible in the semester.

CURRENT UF GRADING POLICIES FOR ASSIGNING GRADE POINTS can be found at this [link to the university grades and grading policies](#).

ACADEMIC HONESTY GUIDELINES: The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust and respect. Students are expected to pursue knowledge with integrity. Exhibiting honesty in academic pursuits and reporting violations of the Academic Honesty Guidelines will encourage others to act with integrity. Violations of the Academic Honesty Guidelines shall result in judicial action and a student being subject to the sanctions in paragraph XI of the Student Conduct Code. The conduct set forth hereinafter constitutes a violation of the Academic Honesty Guidelines ([University of Florida Rule 6C1-4.017](#)).

Cheating. The improper taking or tendering of any information or material which shall be used to determine academic credit. Taking of information includes, but is not limited to, copying graded homework assignments from another student; working together with another individual(s) on a take-home test or homework when not specifically permitted by the teacher; looking or attempting to look at another student's paper during an examination; looking or attempting to look at text or notes during an examination when not permitted. The tendering of information includes, but is not limited to, giving of your work to another student to be used or copied; giving someone answers to exam questions either when the exam is being given or after taking an exam; giving or selling a term paper or other written materials to another student; sharing information on a graded assignment.

Plagiarism. The attempt to represent the work of another as the product of one's own thought, whether the work is published or unpublished, or simply the work of a fellow student. Plagiarism includes, but is not limited to, quoting oral or written materials without citation on an exam, term paper, homework, or other written materials or oral presentations for an academic requirement; submitting a paper which was purchased from a term paper service as your own work; submitting anyone else's paper as your own work.

Misrepresentation. Any act or omission with intent to deceive a teacher for academic advantage. Misrepresentation includes using computer programs generated by another and handing it in as your own work unless expressly allowed by the teacher; lying to a teacher to increase your grade; lying or misrepresenting facts when confronted with an allegation of academic dishonesty.

Fabrication. The use of invented or fabricated information or the falsification of research or other findings with the intent to deceive for academic or professional advantage.

UF's Academic Honesty Policy is clearly stated in rule [6CI-4.017 Student Affairs: Academic Honesty Guidelines](#).

Honor Pledge. We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

In response to COVID-19, the following recommendations are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available and have been demonstrated to be safe and effective against the COVID-19 virus. Visit one.ufl.edu for screening / testing and vaccination opportunities.
- If you are sick, stay home. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 to be evaluated.
- Course materials will be provided to you with an excused absence (documentation required), and you will be given a reasonable amount of time to make up work.