

BIOS E-50: Neurobiology

Description: This course will explore the structure and function of the mammalian nervous system by examining the molecules, cells, and circuits that are involved in directing our behavior. We will emphasize how the nervous system is built during development, how it changes with experience throughout life, how it functions in normal behavior, and how it is disrupted by injury and disease.

Instructor: Dr. Laura Magnotti
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Meeting Time: Wednesdays 7:40 – 9:40 PM, Science Center Hall E

Sections: Graduate section (REQUIRED): Wednesdays 6:30 – 7:30 PM
Undergraduate sections (optional): TBD

Office Hours: Tuesdays 5-6 PM

Prerequisites: Introductory Biology is strongly suggested.

Website: <https://canvas.harvard.edu/courses/18087>

Textbook: The recommended textbook for this course will be *Purves et al., Neuroscience (5th Edition), Sinauer, 2012*. The textbook is available for purchase at the Coop, and a copy will be on reserve at Grossman library (311 Sever Hall). The textbook is recommended as a resource to help clarify concepts. No graded assignments will be taken directly from the textbook. Lecture material will come from a variety of sources, including various textbooks and research journals.

Course Components: All students will complete two midterm exams, a final exam, and two assignments. **Graduate students are also required to attend a weekly section** that will involve student presentations and a poster session (details discussed in section). **Undergraduate section is not required** but is strongly recommended. In the undergraduate section, students will review lecture material and work through practice problems designed to help you understand the material better.

Criteria	Graduate	Undergraduate
Exam 1	20 %	25 %
Exam 2	20 %	25 %
Final Exam	25 %	30 %
Assignments	20 %	20 %
Section	15 %	N/A

Details and due dates for all assignments will be posted on the course website. Any course assignment submitted after 7:45 PM on the date it is due will be considered late. Late assignments will be accepted with a 10% deduction for every 24 hours it is late until the key is posted. At that point, no more assignments will be accepted.

Grade Determination: The grades will be scaled, which means that scoring at the mean on an exam or assignments puts you in the B/B+ range for your course grade. However, I will also set guaranteed cutoffs, which may be lowered but never raised. If you score 94% in the course you are guaranteed an A, 90% an A-, 87% a B+, 83% a B, 80% a B-, 77% a C+, 73% at C, 70% C-.

Attendance Policy: Attendance is strongly encouraged. Limited lecture material will be posted on the course website by midnight on Tuesday. Updated lecture material will be posted on Thursday morning. Note taking during lecture is highly recommended. **No makeup midterm exams will be given without prior approval, including advance notification and documentation of a medical or work-related issue. If you miss an exam as an unexcused absence, you will receive a 0 for that exam.** The Extension School handles final exam scheduling and any makeup requests. Visit their website for the necessary forms should you need to reschedule the final. If you are sick on the day of the final, a makeup request must be filed within 3 days.

Section meetings: Sections will be held most weeks, and these times are indicated in the course schedule. **Section attendance is mandatory for all graduate students.** Undergraduates will not be assigned to a particular section and may attend any or all section meetings. Graduate students are welcome to attend any undergraduate sections that do not conflict with their required sections.

Course Website: You will find many helpful resources on the course website including lecture slides, problem sets, practice problems, and assignment postings. **Remember to login** to view all posted materials. To be able to fully access all the material you will need an official HarvardKey - your registration (DCE) ID and PIN will not work. If you have questions about your IDs and PINs, please visit the Extension School website:
<http://www.extension.harvard.edu/registration/registration-guidelines/id-numbers-pins>

Regrades: Regrades are only allowed if the exam has been completed in pen. Regrade requests must be submitted in writing to the instructor within one week of the exam return. Regrade requests should clearly indicate which question(s) you are requesting us to review and a justification of your request. Simply stating your answer matched the key is not sufficient. No verbal regrade requests will be accepted. However, you may simply submit your exam for corrections of any calculation errors.

Note: Your entire exam will be completely regraded.

Academic Integrity: You are responsible for understanding Harvard Extension School policies on academic integrity (www.extension.harvard.edu/resources-policies/student-conduct/academic-integrity) and how to use sources responsibly. Not knowing the rules, misunderstanding the rules, running out of time, submitting "the wrong draft", or being overwhelmed with multiple demands are not acceptable excuses. There are no excuses for failure to uphold academic integrity. To support your learning about academic citation rules, please visit the Harvard Extension School Tips to Avoid Plagiarism (www.extension.harvard.edu/resources-policies/resources/tips-avoid-plagiarism), where you'll find links to the Harvard Guide to Using Sources and two, free, online 15-minute tutorials to test your knowledge of academic citation policy

Discussion and the exchange of ideas are essential for scientific inquiry. For assignments in this course, you should feel free (and in fact are encouraged) to consult with your classmates unless otherwise specified. However, any written work you submit for evaluation must be in your own words and reflect your own thinking.

Disability Services: The Extension School is committed to providing an accessible academic community. The Disability Services Office offers a variety of accommodations and services to students with documented disabilities. Please visit www.extension.harvard.edu/resources-policies/resources/disability-services-accessibility for more information.

Tentative course schedule: Topics are subject to change, but exam dates are set. Lectures will occur weekly (except for exam weeks) regardless of whether sections meet or not.

Week	Date	Lecture Topic	Readings (Purves chapter)	Assessment	Section meeting?
1	8/31	Introduction: cells of the nervous system and neuroanatomy	1		grad only
2	9/7	Neurophysiology: membranes and resting potential	2,3		both
3	9/14	Neurophysiology: the action potential	4		both
4	9/21	Synaptic transmission	5	Assignment #1 due	both
5	9/28	Neurotransmitters and receptors	6, 7		both
6	10/5			Exam #1 Lectures 1-5	exam reviews
7	10/12	Vision: the eye, the mind, and the brain	11, 12		grad only
8	10/19	Chemical Senses: olfaction and taste	15		both
9	10/26	Motor systems and their dysfunction	16, 17		both
10	11/2			Exam #2 Lectures 6-8	exam reviews
11	11/9	Development of the nervous System	22, 23		grad only
12	11/16	Neuronal modulation; Learning and memory	24, 31		both
13	11/23	Thanksgiving holiday			
14	11/30	Repair and regeneration of the nervous system	25	Assignment #2 due	both
15	12/7	Complex behaviors and their disorders Grad poster session			undergrad only
16	12/14			Final Exam Lectures 9-12	exam reviews