

MCB 63L: Introduction to Neuroanatomy Lab

Summer 2019, Session D

July 8-August 16

Lab sections: M-Th 12:30-2:30 and 3:00-5:00 PM, 4048 VLSB

Instructor

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Office hours: Thursdays 11:30am-12:30pm, 134 LSA

Graduate Student Instructors (GSIs)

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Office hours will be posted on bCourses

Course description

This lab course is an introduction to mammalian neuroanatomy for non-MCB majors. We will do dissections, explore physical anatomical models, and observe microscopic structures within preserved brain slices from a variety of mammalian species. The hands-on exploration of anatomy is key to understanding how the different functional regions of the nervous system are interconnected. Besides gaining a better understanding of anatomy, you will gain important scientific skills such as conducting parts of a neurological exam, fluorescent and light microscopy, reading MRI scans and conducting fine dissections. The course will culminate with a group project using the online Allen Brain Atlas to investigate a novel scientific question.

Course reading

There is a lab manual that will be posted on bCourses and be available on the computers in the lab room. Read the lab before coming to class, so you can efficiently work through the lab.

There is no required textbook, but you will likely need to reference neuroscience textbooks such as:

Kandel "Principles of Neural Science". Available online from the UC Berkeley library
<https://neurology-mhmedical-com.libproxy.berkeley.edu/book.aspx?bookid=1049>

Martin "Neuroanatomy Text and Atlas". Available online from the UC Berkeley library
<https://neurology-mhmedical-com.libproxy.berkeley.edu/book.aspx?bookid=1854#129941493>

Grades

Quizzes (3 x 10%)	30%
Lab notebook	25%
Exam	35%
Allen Brain Atlas project	10%

Assignments

Quizzes: There will be three short quizzes in lab sections (see the schedule). Quizzes will take 15 minutes.

Lab notebook: You are required to bring your lab notebook with you to every lab session. While you read the lab manual before class, you should prepare a pre-lab in your notebook, so you can easily keep track of what you should do in lab. Your notebook should include a summary of the procedures, notes about the lab procedures, drawings and images you make during lab, and answers to questions in the lab manual. You can find more details about the notebook in the course manual. GSIs will randomly check lab notebooks throughout the semester, so always bring your lab notebook and keep up with your work. This will be an invaluable resource when you study for the exam.

Exam: There is one exam during the 5th week of class. It will take place in the lab room and you will get 2 hours to complete the exam. The exam will cover all the material from previous labs. There will be a practical component to the exam, where you will need to identify anatomical structures or tissues from dissections and slides.

Allen Brain Atlas project: In labs 17-18, you will be introduced to the online Allen Brain Atlas, which is an important resource for anatomy research. You will work in groups to develop a main question to pursue using data in the atlas. You will prepare a poster presentation of your main findings to present to the rest of the class on the last day.

Accommodations

If you need disability-related accommodations in this class, if you have emergency medical information you wish to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class or email me.

Students who need academic accommodations (for example, a notetaker), should request them from the Disabled Students' Program, 260 César Chávez Center, 642-0518 (voice or TTY). DSP is the campus office responsible for verifying disability-related need for academic accommodations, assessing that need, and for planning accommodations in cooperation with students and instructors as needed and consistent with course requirements.

Honor code

The student community at UC Berkeley has adopted the following Honor Code:

“As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others.” The hope and expectation is that you will adhere to this code.

Cheating: A good lifetime strategy is always to act in such a way that no one would ever imagine that you would even consider cheating. Anyone caught cheating on a quiz or exam in this course will receive a failing grade in the course and will also be reported to the University Center for Student Conduct. In order to guarantee that you are not

suspected of cheating, please keep your eyes on your own materials and do not converse with others during the quizzes and exams.

Plagiarism: To copy text or ideas from another source without appropriate reference is plagiarism and will result in a failing grade for your assignment and usually further disciplinary action. We will check your papers for plagiarism, so please be careful about this. For additional information on plagiarism and how to avoid it, see, for example: <http://www.lib.berkeley.edu/instruct/guides/citations.html#Plagiarism>
<http://gsi.berkeley.edu/teachingguide/misconduct/prevent-plag.html>

Academic Integrity and Ethics: Cheating on exams and plagiarism are two common examples of dishonest, unethical behavior. Honesty and integrity are of great importance in all facets of life. They help to build a sense of self-confidence, and are key to building trust within relationships, whether personal or professional. There is no tolerance for dishonesty in the academic world, for it undermines what we are dedicated to doing – furthering knowledge for the benefit of humanity.

Your experience as a student at UC Berkeley is hopefully fueled by passion for learning and replete with fulfilling activities. And we also appreciate that being a student may be stressful. There may be times when there is temptation to engage in some kind of cheating in order to improve a grade or otherwise advance your career. This could be as blatant as having someone else sit for you in an exam, or submitting a written assignment that has been copied from another source. And it could be as subtle as glancing at a fellow student's exam when you are unsure of an answer to a question and are looking for some confirmation. One might do any of these things and potentially not get caught. However, if you cheat, no matter how much you may have learned in this class, you have failed to learn perhaps the most important lesson of all.

Safe, Supportive, and Inclusive Environment

Whenever a faculty member, staff member, post-doc, or GSI is responsible for the supervision of a student, a personal relationship between them of a romantic or sexual nature, even if consensual, is against university policy. Any such relationship jeopardizes the integrity of the educational process.

Although faculty and staff can act as excellent resources for students, you should be aware that they are required to report any violations of this campus policy. If you wish to have a confidential discussion on matters related to this policy, you may contact the Confidential Care Advocates on campus for support related to counseling or sensitive issues. Appointments can be made by calling (510) 642-1988.

The classroom, lab, and work place should be safe and inclusive environments for everyone. The Office for the Prevention of Harassment and Discrimination (OPHD) is responsible for ensuring the University provides an environment for faculty, staff and students that is free from discrimination and harassment on the basis of categories including race, color, national origin, age, sex, gender, gender identity, and sexual

orientation. Questions or concerns? Call (510) 643-7985,
 email mask_ophd@berkeley.edu, or go to <http://survivorsupport.berkeley.edu/>.

Schedule of labs

Week	Monday	Tuesday	Wednesday	Thursday
1	1. Intro + models	2. Human brain and outer sheep brain	3. Sheep brain dissection #1	4. Sheep brain dissection #2
2	5. Human spinal cord + slides Quiz 1 (Lab 1-4)	6. Somatosensory system	7. Visual system: Eye dissection + retina slides	8. Auditory system: Ear slides + auditory threshold test
3	9. Motor + reflexes Quiz 2 (Lab 5-8)	10. Cranial nerves	11. Clinical case studies and MRI	12. Rat brain slides #1
4	13. Rat brain slides #2	14. Neurocytology Quiz 3 (Lab 9-13)	15. Fluorescent imaging of PC12 cells	16. Fluorescent imaging of mice brain slices
5	17. Intro to Allen mouse brain connectivity atlas	18. Intro to Allen gene expression atlas	Review for exam	Exam (Lab 1-18)
6	19. Allen Brain Atlas (ABA) project	20. ABA Project	21. ABA Project	ABA Poster Presentations