MCB 32L: Introduction to Human Physiology Laboratory
Fall 2021

Class times
Lecture	Mon 12-1pm	2060 VLSB
Laboratory Sections	Wed, Fri 9am-12pm	4056 VLSB
	Tues, Wed, Thurs, Fri 2-5 pm	4056 VLSB

Instructor
Robin Ball, rwball@berkeley.edu

Graduate Student Instructors
Section	GSI	Email
101: Tu 2-5	Hannah Chi	hannahmayreen@berkeley.edu
102: W 9-12	Hannah Chi	hannahmayreen@berkeley.edu
103: W 2-5	Andrew Saintsing	andrew_saintsing@berkeley.edu
104: Th 2-5	Andrew Saintsing	andrew_saintsing@berkeley.edu
105: F 9-12	Frances Lin	franceslin@berkeley.edu
106: F 2-5	Frances Lin	franceslin@berkeley.edu

All office hours will be posted on bCourses

Grading
The final grade will be based on:

		Pts
1. Pre-Lab Questions (labs 1-8)	7 @ 10 pts each (lowest dropped)	70
2. Lab Reports (labs 1, 3, 5)	3 @ 100 pts each	300
3. Post-lab assignments (labs 0-8)		280
4. Independent Investigation*		170
5. Exam		100
6. Lab Participation		100
	Total Points	**1020**

* The independent investigation (Lab 9) will consist of three parts:
- Proposal   20 pts
- Laboratory report   100 pts
- Presentation   50 pts

Pre-Lab Questions
Pre-lab questions for Labs 1-8 will be posted on bCourses in the Assignments section and are **due at the beginning of your lab section**. They consist of questions related to that day's lab. The answers can be found in the lab manual and from the lab lectures (web searches won't always give you the right answer!). The purpose of these questions is to make sure you read the laboratory manual before coming to class so you are totally prepared for the lab exercises. Lab

will go a lot more smoothly if everyone reads the lab manual before class. We will not accept late pre-labs, but will drop your lowest score.

Post-lab assignments
Labs 0-8 have a bCourses assignment associated with it **due on bCourses at 11:59pm two days after your lab section**. If you come to lab section prepared to work, you should be able to complete most of the assignment during class. You will be asked to analyze and interpret the data you collected. If there is a Jupyter notebook associated with a lab, then you will submit the complete version through these assignments. Labs that do not have a lab report associated with them will be worth 40 points. Post-lab assignments for labs that have a lab report will be worth 20 points. These post-lab assignments will help you think about the data and get you ready to write your lab report.

You may work on the post-lab assignments with other students, but you should write your own answers using your own words. Do not copy from other students or from the lab instructions.

Lab reports
Lab reports are a formal write-up of the experiments you did, results you found, and the conclusions you can draw from these results. Although you perform the labs in a group, lab reports need to be written individually, using your own words. Your GSI will discuss the requirements in more detail with you. Specific guidelines for what to include in your lab reports are found at the end of these labs.

Lab reports are submitted on bCourses and checked for copying using Turnitin. **They are due before your lab section the week after the lab takes place**. Each lab section will have different due dates and times on bCourses. Write your own lab reports using your own words. Do not copy from others or from the internet/lab manual. If we discover that you have copied the work of another, you will receive 0 points on that assignment. You cannot pass this class without doing the lab reports.

Exam
There will be one multiple choice exam available online through Gradescope. You can take the exam at any time on Monday November 8. You will get 60 minutes to take the ~40 question exam. The questions will be multiple choice, select all or numerical. You may use your notes or any other material to take the exam, but you will not have enough time to look up every answer. You may not work with other students on the exam; that is considered cheating. In order to prepare for the exam, attend/watch lecture, do the pre-labs, study questions and generally pay attention during the lab. This is the only exam in the class; we do not have an exam during finals week.

Lab Participation
These points will be awarded at the discretion of your graduate student instructor. It will be based on an evaluation of your participation during lab time, attendance, readiness for lab and the work you put into doing the Jupyter notebooks and answering the post-lab questions.

Independent Investigation
During the last three labs of the semester, you will be working in groups to conduct and analyze your own experiments, which will follow up on concepts from earlier labs. You will need to

write a proposal for what you will test, how you will test it and how you will analyze the data. You will turn in one proposal per group and you will all receive the same grade. Your GSI will provide feedback to your group, so you can make changes to your plan before you start the experiments. You will have two lab sections to collect data and prepare your presentation. During the last lab section, you will each <u>individually</u> submit your own lab report. In the last lab section, your group will present your experiments to the rest of your lab section.

<u>Late lab report and worksheet policy</u>
This class moves quickly and there are a lot of assignments, so it is very important that you keep up with the assignments. This is why we have due dates to motivate you to keep up with the work. There are consequences for turning in assignments late:
- Pre-labs must be completed on time to receive credit.
- Your Lab 9 proposal needs to be submitted on time. Since you are receiving feedback to prepare for Lab 9, you really need to submit this work on time. You will lose 2% for each day it is late.
- You may submit post-lab assignments up to one week late, but you will lose 2% for each day it is late, up to 10% off.
- Lab reports can be submitted up to two weeks late, but not after that. You will lose 2% for each day it is late, up to 10% off. <u>You need to complete the lab reports to pass this course.</u>

<u>Attendance policy</u>
Unfortunately, due to the preparation involved in laboratory setup, it is usually not possible to make up any laboratories. **If you know ahead of time you will miss a laboratory or if you are sick and cannot attend you must contact your GSI.** A missed laboratory session without a valid reason will result in a deduction of 50 points from your final grade. Due to the enrollment size, **you cannot just attend another laboratory section**. If the absence is excused, you can still do the lab report and post-lab assignment using data from other students in the class. Please tell your GSI if you will be late to lab or if you need to leave early, but do not make a habit of it.

Attendance in lecture is not required, though it is encouraged. The lectures will be recorded and posted later in the day on Mondays. If you do not come to lecture you need to watch the lecture recordings to prepare for the lab.

<u>Covid-19 policies</u>
We are still in the pandemic and we expect everyone to follow the current guidelines announced by the campus. You are expected to have a green campus access badge, having been vaccinated or frequently getting tested. You should fill out the daily symptom screener before coming to campus. Whenever you are indoors, you should wear a mask over your nose and mouth. Consider this another laboratory safety rule, like wearing closed-toe shoes and pants. If you do not wear a mask, you will not be allowed to attend class.

If you have tested positive for Covid-19 or if you are feeling ill or have been asked to quarantine, please contact your GSI and <u>do not come to class</u>. This is considered an excused absence and you will still be able to do the assignments associated with the missed lab. As the semester progresses you will get to know your GSI and the other students in your laboratory section, and you will be part of a friendly community. We want to keep our community safe, so please always follow the rules set out by the University and your instructors.

There is lab during the first full week of the semester (starting August 30).
You must attend lab during the first week to keep your place in the class.
* Labs 1-8 have a pre-lab due before your lab section. Labs 0-8 have a post-lab assignment due two days after your lab section.

Week	Monday lecture	Lab	Assignments due *
8/30	1. Diffusion	Lab 0 – Introduction to Python and LabScribe, journal article activity	
9/6	*No lecture (Labor Day)*	Lab 1 – Diffusion	
9/13	2. Sensory systems	Lab 2 – Sensory systems	Lab 1 report
9/20	3. Action potentials and reflexes	Lab 3 – Nerve conduction	
9/27	4. Muscle contraction and summation	Lab 4 – Muscle excitability Sign-up for Lab 9 topic	Lab 3 report
10/4	5. EMGs and muscle movement	Lab 5 – EMG	
10/11	6. Heart, cardiac muscle, regulation of heart rate	Lab 6 – Frog heart	Lab 5 report
10/18	7. ECG, blood pressure and exercise physiology	Lab 7 – Cardiovascular system and exercise physiology	Lab 9 proposal
10/25	8. Diabetes	Lab 8 – Diabetes data science	
11/1	9. Example Lab 9 presentation	Lab 9 – Independent Investigation	
11/8	*No lecture*	*No lab all week (Veteran's Day)*	Exam on Nov 8
11/15	*No lecture*	Lab 9 – Independent Investigation	
11/22	*No lecture*	*No lab all week (Thanksgiving)*	
11/29	*No lecture*	Lab 9 presentations	Lab 9 report

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 ask_ophd@berkeley.edu, or go to http://survivorsupport.berkeley.edu/.

Diversity statement

The University of California considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. Our community is enriched and enhanced by diversity along a number of dimensions, including race, ethnicity, national origins, gender, sexuality, class and religion. We welcome all our students in our class and hope that you always feel included. If there are aspects of the instruction within this course that result in barriers to your inclusion, please let us know. Your suggestions are encouraged and appreciated.

Mental Health and Wellness

All students – regardless of background or identity – may experience a range of issues that can become barriers to learning. These issues include, but are not limited to, strained relationships, anxiety, depression, alcohol and other drug problems, difficulties with concentration, sleep, and eating, and/or lack of motivation. Such mental health concerns can diminish both academic performance and the capacity to participate in daily activities.

In the event that you need mental health support, or are concerned about a friend, UC Berkeley offers many services, such as free short-term counseling at University Health Services. A campus website having links to many resources is: https://recalibrate.berkeley.edu/
Remember that seeking help is a good and courageous thing to do – both for yourself and for those who care about you.

Services for Students Encountering Food and Housing Insecurity
If you are in a situation where you are facing challenges in gaining access to nutritious, affordable food during the semester, you can find help by going to the UC Berkeley basic needs program at http://basicneeds.berkeley.edu/ or the UC Berkeley Food Pantry at https://pantry.berkeley.edu/. You may be eligible for the CalFresh program as well.

A list of important resources for all students is on our bCourses page listed in the menu as "Student Resources". You will find links for mental health, medical needs, sexual harassment, the Gender Equity Resource Center, emergency food/cash/housing needs, legal support and disability accommodations. Please use these resources whenever you need them.