

IB132L - Schedule of Assignments - Spring 2020

Week	Lab Dates	Lab	Assignment	Pts.	Due**
1	1/20 – 1/23	No Labs			
2	1/27 – 1/30	Membrane Diffusion Potentials	Group Worksheet <i>Individual Homework</i> Group Ideas (5 min)	20 20 -	Next class Next class Next class
3	2/3 – 2/6	Stimulating Skeletal Muscle	Group Worksheet & Discussion. Qs Discuss Group Ideas Group Proposal Draft*	40 5	Next class In class Next class
4	2/10 – 2/13	Electromyography	Group Dis. Qs GSI Approval of Group Proposal Final Group Proposal <i>Stats pre-lab individual</i>	40 10 5	Next class In class next class next class
5	2/17	HOLIDAY	Monday labs TBD Tu-Fri		
5	2/18 – 2/21	Statistics	Group & <i>Indiv. Worksheet</i> Intro. & Methods Draft*	35 5	next class Next class
6	2/24-2/27	Independent Investigation: Neuromuscular Physiology, day 1	Results Draft* Peer Review of I&M	5 2	Next class In class
7	3/2 - 3/5	Independent Investigation: Neuromuscular Physiology, day 2	Discussion Draft* Peer review of Results	5 2	Next class In class
8	3/9 - 3/12	Symposium #1: Neuromuscular Physiology	Group Presentation Peer Review of Discussion Peer Evaluation Survey Group Paper	70 2 10 100	In class In class In class Next class
9	3/16 - 3/19	The Frog Heart	Group Dis. Qs	40	Next class
INDIE INVESTIGATION PAPER DUE					
10	3/23 - 3/27	No Lab	SPRING RECESS		
11	3/30 – 4/2	Pulmonary and Cardiovascular Physiology	Group Dis. Qs Group & Ind. Ideas (5 min)	40	Next class Next class
12	4/6 - 4/9	Human Electrocardiography	<i>Individual Dis. Qs</i> Present Group Ideas/GSI approval	40	Next class In class
13	4/13 - 4/16	Renal Control of Body Fluids	Group Dis. Qs <i>Ind. Project Group Proposal</i>	40 10	Next class Next class
14	4/20 - 4/23	Independent Investigation: Human Exercise Physiology, day 1	<i>Indiv. Intro. & Methods Draft*</i>	5	Next class
15	4/27 – 4/30	Independent Investigation: Human Exercise Physiology, day 2	<i>Indiv. Results/Disc Draft*</i> <i>Peer review of I&M</i>	5 2	Next class In class
16	5/4 - 5/8 RRR week	Symposium #2: Human Exercise Physiology	<i>Group Presentation</i> <i>Peer Review Results/Disc</i> <i>Individual Paper</i>	70 2 150	In class In class Finals week
			Peer evaluation Survey	10	Day after class
17	5/11 - 5/15	No Lab (finals week)	FINAL PAPERS DUE		

*All drafts are worth 5 pts, all or nothing (to be peer evaluated). **Late assignments are penalized 10% per day.	GSI Evaluation	30	
	Lecture "Quizzes"	20	
	TOTAL POINTS	840	

**IB132L – Mammalian Physiology Lab Syllabus – 2020
Room 3048 VLSB**

Laboratory Section Instructor/Coordinator

Austin Peck, peck@berkeley.edu

Graduate Student Instructors For Laboratory Sections

GSI Name TBD, [email address](#), Lab section numbers

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GSI Office Hours:

- **GSI TBD:** TBA@ VLSB
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You are welcome to come to the office hours of any GSI.

Section Times

Sec 1, Mon 9 AM - 12 PM GSI TBD

Sec 2, Mon 2 PM - 5 PM GSI TBD

Sec 4, Tues 2 PM - 5 PM GSI TBD

Sec 5, Weds 9 AM - 12 PM GSI TBD

Sec 6, Wed 2 PM - 5 PM GSI TBD

Sec 8, Thurs 2 PM - 5 PM GSI TBD

Lab Manual: Each lab activity will be posted to Files in bCourses at least the week prior to the given lab, if not sooner. Any supplemental written materials will also be posted to Files.

Text Book: Vander's HUMAN PHYSIOLOGY, 15th Edition, McGraw Hill, 2018 This is the same text as for lecture. However, if you have an earlier edition, you may use it for lab.

Flashdrive: Although not 100% necessary, a flashdrive can be useful for copying your results and the lab software LABSCRIBE3 (LS3) for working up your data outside of class.

Quizzes: Quizzes will be given at the beginning of each lab period, in a fun, group gaming format requiring verbal participation. Occasionally, quizzes will be given in a written format. If you are late to class, you will not be given additional time. Make-up quizzes will not be given. Please arrive to lab on time.

Peer review: You will review your classmates written work throughout the semester. This is an integral part of the scientific process and a great skill to develop. Over the course of the semester, you will learn what is useful feedback, develop critical reasoning skills, improve your knowledge of physiology, and benefit from working as a learning community.

Assignments: You will complete both individual and group assignments. Late assignments will be marked down 10% per day late.

Office Hours: You are encouraged to attend office hours to discuss/ask questions about the lab material. Lab instructors will hold office hours in **3047 or 3048 VLSB**. *You may attend any of the lab instructor office hours, even if they are not your section instructor.* Times will be posted on the lab door and on bCourses.

DSP Students: In accordance with the University and the Disabled Students Program, this course adheres to the principles of equity and inclusion. If you require special accommodations, please contact your GSI as early as possible in the semester so that we can plan the necessary accommodations.

Grading Policies: Letter grades will be determined at the end of the semester. The cutoffs for letter grades are typically **A- \geq 90%**, **B- \geq 80%**, **C- \geq 70%**, **D- \geq 60%**, and **F $<$ 60%** and may be lowered at the professor's discretion. *Points are earned by completing assignments and participating throughout the semester.*

For students on the border of cutoffs faculty will review the student's individual participation and scores and determine which letter grade best represents their achievement in the course. Grades will not be rounded up for the sole purpose of getting to the next cutoff.

Letter Grade	Percentage
A+	97%+
A	93%-96%
A-	90%-92%
B+	87%-89%
B	83%-86%
B-	80%-82%
C+	77%-79%
C	73%-76%
C-	70%-72%
D+	67%-69%
D	63%-66%
D-	60%-62%
F	0%-59%

Final grades will be submitted at the latest on Wednesday, May 22nd, after which grades can only be changed due to a clerical or procedural error, not on a reassessment of student performance.

All class materials such as, but limited to, the lab manual, guides, assignments, powerpoints/gslides, etc. posted on bCourses, are copyrighted property of the Instructors and UC Regents. They shall not be posted on the web on CourseHero or any other site.

I. Goals

“A lab is where you do science” (Thornton 1972). In this course you will learn some of the skills of the professional scientist as you gain hands-on experience measuring physiological parameters. These skills include thinking creatively and analytically to pose questions, solve problems, design experiments, interpret data, and communicate ideas effectively in written reports and oral presentations. Specifically, by the end of the semester you will be able to do the following:

1. conceive of novel questions that can be investigated scientifically
2. devise testable hypotheses to answer those questions
3. design an experiment to test those hypotheses
4. use a variety of techniques to measure physiological parameters and use a computer to record and manipulate the data
5. interpret scientific data, including graphing and simple statistics
6. write up an experiment as a journal article
7. critically review a paper
8. present research findings orally in the format used at scientific meetings
9. use common spreadsheet, statistical, data acquisition, and presentation software
10. work effectively in a team

In some labs, you will be given a set of specific questions to be investigated, along with a description of the system and techniques you can use to answer them. However, we will not provide an exhaustively detailed protocol, as we want you to enjoy the process of tinkering with the equipment and the technique to discover for yourself how to find the answers. In other labs, you will be asked to conceive of the investigation yourself, starting by identifying questions you want to answer, then developing hypotheses and designing experiments to test those hypotheses. In these labs our role will not be to tell you what hypotheses to test, what experiment to do, and how to get "the right answer". Frequently there is no "right answer". It will be up to you to formulate your own hypothesis, to gather data to support or refute your suspicion, to interpret these data, and to persuade your peers and instructors that your analysis is correct. In these labs, your instructors will provide feedback on your proposals and serve as consultants during the experimentation and statistical analysis phases. Although you will have access to plenty of help along the way, the primary responsibility for a successful investigation rests with you.

Your investigations will focus on organ-level and systems-level human physiology. In most labs, you will be both the experimenter and the subject, as you employ a variety of techniques for measuring physiological parameters non-invasively in humans. A few labs will employ animal or inanimate models for experiments that are not feasible or ethical on human subjects.

II. Working in groups

Most scientific research is performed collaboratively. You can see evidence of this in academic journals by noting the number of multi-authored papers and reading the acknowledgements section at the end of each paper. Similarly, you will work with a small group of peers in this course to design and conduct experiments, analyze data and prepare oral presentations. Working in groups has several advantages, including (1) multiple perspectives, leading to better research ideas and analyses, (2) different students bring different, complementary skills to the group, (3) an individual learns more by having to discuss and explain ideas than by working alone, (4) cooperation within the group can save time by dividing up some of the tasks. Your instructor will assign you to a group (normally 3-5 students) based on your interests, background and skills.

III. Academic Integrity

All students should be familiar with the **Code of Student Conduct** and know that the general rules and student rights stated in that document apply to this class (copies may be picked up at 326 Sproul Hall or accessed through the Web at <http://sa.berkeley.edu/code-of-conduct>)

Plagiarism is defined as use of intellectual material produced by another person without acknowledging its source, for example:

- Wholesale copying of passages from works of others into your homework, essay, term paper, or dissertation without acknowledgment.
- Using the views, opinions, or insights of another without acknowledgment.
- Paraphrasing another person's characteristic or original phraseology, metaphor, or other literary device without acknowledgment.

If you are found to have violated any of these restrictions you may receive a failing grade on the assignment or in the course and your actions will be reported to the Office of Student Conduct for administrative review.

As a tool to promote academic integrity in this course, written work submitted via bCourses may be checked for originality using Turnitin. Turnitin compares student work to a database of books, journal articles, websites, and other student papers. For more information about Turnitin at UC Berkeley, visit <http://ets.berkeley.edu/academic-integrity>.

Although this general statement serves as a useful guideline, you may find it difficult to apply in the collaborative atmosphere of the IB132L lab. What follow are some down-to-earth extensions of these principles to specific situations you will encounter in this course. The course staff takes the matter of academic integrity very seriously, and will refer violations to the course director and the Office of Student Conduct. We encourage you to consult your lab instructor if you have any questions about how to handle ethical issues in this course.

When to collaborate: You are encouraged to work with your classmates in the all stages of the investigation except writing the final research paper and paper reviews. Once the data are analyzed for that paper, your collaboration should end. The paper should be written in your own words without assistance from others. Paraphrasing another student's paper is unacceptable. Moreover, the use of papers written by others, whether in your class or in a previous year's, whether attributed or not, is inappropriate. This does not preclude your use of text from *your* group's proposal, or graphs, and tables from *your* group's data analysis, since you are a co-author of those. The group oral presentation is another instance where collaboration is desirable.

Crediting the work of others: In reading the scientific literature, you will notice that direct quotations of other publications are used only rarely. Instead, a paraphrase of a concept or fact obtained elsewhere is followed by a reference (author and date) to a citation in the literature-cited section. This reference serves not only to credit the source, but to lend authority to your statement. If you obtain from another person an idea or observation that is unpublished, you should credit it as a personal communication (*e.g.*, Ghost crabs search for prey on open beaches (Wright, personal communication)). It is preferable to cite a published source if one can be found, since the reader can better judge the credibility of a source that is accessible for scrutiny.

Honesty in reporting your own work: You should strive to report your work accurately and completely. Reporting data points that support an expected outcome and ignoring points that don't is just as dishonest as reporting false data. To help you write an accurate account of your investigation, it is a good idea to keep a laboratory notebook in which you record data *as they are collected*, along with notes on the procedure, identity of samples, etc. In many government and industry research labs, such contemporaneous records sometimes prove critical in resolving cases of patent disputes and suspected academic dishonesty.

IV. Attendance, Participation, and Missed Labs

Because of the hands on and collaborative nature of this course, attendance and participation are essential to the learning experience. For these reasons, we have enacted the following polices:

Tardiness and Participation: Tardiness and participation will be factored into your grade through the GSI evaluation. Group contribution for Independent Investigations will also factor into your grade via the peer evaluations. If you have circumstances that are beyond your control that will lead to you being tardy it is in your best interest to inform your GSI before lab.

Excused Absences: *It will not be possible to pass this course with two (2) or more missed labs.* Excused absences will be evaluated on a case by case basis, and will require a note to validate your reason (if possible). All reasonable alternatives must be exhausted (attending a lab earlier or later in the week, moving your commitment, etc.) before an absence will be excused. Please speak with your GSI as soon as possible if you have a family or medical emergency or academic accommodation need.

V. Use of Animals in the Instructional Program

Certain courses offered at the University of California at Berkeley require the use of animals, living or preserved, vertebrate and/or invertebrate, and or their preserved and/or extracted parts, in the course of instruction. Such animal use is determined judiciously by the instructors of the courses to be necessary and appropriate to education of students both intellectually and technically. All use of animals in teaching and research is thoroughly reviewed by the campus Animal Care and Use Committee. It is the responsibility of students to ascertain course requirements before enrollment, and the responsibility of instructors to provide that information clearly and unequivocally. Should students find enrollment in such course not appropriate to their interests or beliefs, they should see their advisors to recommend alternative courses, or, if appropriate, alternative majors.