

Human Physiology I

BIPN 100, Winter 2023

Tues Thur, 12:30-1:50 pm
Galbraith Hall 242

Instructor: **James Cooke**

email: j2cooke@ucsd.edu

Office hours: Tues 2 - 3 pm (location TBA); Wed noon - 1 pm (location TBA)

Materials:

- Textbook: Human Physiology by Silverthorn, 8th edition (older versions are okay, but page numbers will likely be different.)
- We'll be using RedShelf for this quarter, with access to a reduced price online textbook.
- Your digital course materials are provided by the UC San Diego Bookstore through Canvas and are free for the first two weeks of class. After two weeks, your student account will be charged a special reduced price unless you **opt out**. If you decide to opt out you must complete the process by **January 21st, 2023, 11:59PM PST** and you will be responsible for sourcing the materials elsewhere.

Instructions for how to opt out can be found [here](#).

Evaluation:

Pre-lecture quizzes	4%
early quarter survey	1%
pre-midterm surveys (one before each midterm; 1% each)	2%
end of quarter survey	1%
Syllabus quiz	1%
Midterm 1	28%
Midterm 2	28%
Final Exam	35%

Grades will follow the scheme below:

A+	≥ 90%	B-	70-73
A	85 - 89	C+	67-69
A-	80-84	C	64-66
B+	77-79	C-	60-63
B	74-76	D	50-59

No curving, no nonsense. The grade you receive is the grade you earned.

Podcasts: You can access the podcasts for our class at podcast.ucsd.edu. You'll need to log in to access them, but they'll be there after class. Can't make it to class? No problem - watch the podcast. But I strongly recommend that you take in-class exercises (worksheets, questions, etc) seriously.

Midterm exams: Are in person at the time and location indicated. Can't make it to the midterm (for any reason)? No problem, we've accommodated for that (see "Accommodations for midterm exams" below).

Accommodations for midterm exams: IF your final exam score is higher than BOTH midterms, I will make the final exam worth 91% and the midterms worth nothing. See "student D" and "E" examples below. If one of your midterm exam scores (eg: midterm 1) are lower than the final exam and the other (eg: midterm 2) is higher than the final exam score, I will take the 28% of the lower midterm and allot it the following way:

I will take 10% of the lower midterm and place it on the higher midterm (eg: midterm 2) to make the higher midterm worth 38% of your grade. The remaining 18% will be added to your final exam score, which will be worth 53% of your grade. See "Student B" and "C" below.

Consider the examples of 5 students below:

Student	MT1 score (%)	MT2 score (%)	Final exam score (%)	Then...	Final /91; %
A	74	81	71	MT1 28%; MT2 28%; final exam 35%	68.25 / 91, or 75%
B	65	77	74	MT1 0%; MT2 38%; final exam 53%	68.48 / 91, or 75%
C	84	0	70	MT1 38%; MT2 0%; final exam 53%	69 / 91, or 76%
D	55	63	82	MT1 0%; MT2 0%; final exam 91%	74.62 / 91, or 82%
E	0	0	70	MT1 0%; MT2 0%; final exam 91%	63.7 / 91, or 70%

Student A has both midterm scores higher than the final exam, so the distribution is the same as "normal" above. Students B and C have both had one midterm score higher than their final, and one midterm score lower. The lower midterm score is broken up between the higher MT score and the final. Student D's midterm scores are both lower than their final, so the final accounts for all of their exam scores. Same is true for Student E, who hasn't even taken a midterm at all!

Remember: if you are unable to take one (or both!) of the midterms: that is okay! The accommodations above will compensate for that. Whether you are sick, family emergency, out of town, etc.

Warning: if you miss both midterms and are unable to take the final exam (for justifiable reasons - eg: an illness with a doctors note), you will NOT be eligible for a grade of "incomplete". You must have work of passing quality to get a grade of "incomplete".

Regrade requests: if - after checking the answer key on canvas - you disagree with how a particular midterm question was graded, you can submit a formal regrade request. You must submit a hardcopy to

Jim no later than our last class: Thursday, March 16. Your note must refer to the answer provided in the answer key and articulate how your answer is similar to / the same as that provided. Jim will regrade your entire exam, and your score may go up or down. Jim will process regrade requests after final letter grades are calculated, but before they are posted (many folks will get an “A” without the regrades!).

Final exam: is mandatory and in person (senate policy can be found here: <https://senate.ucsd.edu/operating-procedures/educational-policies/courses/epc-policies-on-courses/policy-exams-including-midterms-final-exams-and-religious-accommodations-for-exams/>). Date and time are set by the registrar. Set your alarms.

Submitting your work: I feel like an idiot writing this, but you have to hand in your exams to be graded. You can hand them to an IA or Jim who will then place them in a box at the front of the room.

Pre-lecture quizzes: There will be pre-lecture quizzes each week (due on Sunday at 11:59 pm). Each week, I will assign some reading from your textbook and there will be a quiz that goes along with the pre-reading. Both the assigned reading and quiz will be located in the “pre-lecture” folder for that particular week on our Canvas site. Quizzes will be posted by midweek the preceding week. You can take each quiz twice, and I will record the higher of the two grades. I also drop the lowest TWO quiz scores of the quarter. The first assignment is due Sunday Jan 15 (**Sunday leading into Week 2!**)

Surveys: we’re having several surveys this quarter, each worth 1% of your grade and each should take less than 10 minutes. One is an early quarter survey available Jan 13 and due Jan 20. There will be a ‘pre-midterm’ survey before both of our midterms. They will be available a few days before the midterms and due when the midterms begin. I’ll send reminders ;). Finally, there will be an end-of-quarter survey. Phew!

Syllabus quiz: you can take the syllabus quiz as many times as you like, and we’ll keep the highest grade. You must complete the quiz by Thursday Feb 2 at 12:30 pm.

Discussion Sections: are voluntary. You can attend any section you like. However, in the event that the room is at (or over) capacity, preference will be given to students registered for that particular section. Sections are scheduled to be in person, at the location and time provided by the registrar. Sections will begin **week 2**. Old exam questions will be reviewed, which is quite helpful.

Student-centered classroom: it is important to me that our classroom is space where we are able to engage with the material in a meaningful way. There is substantial literature indicating that using class time to answer questions and discuss the content with peers leads to improved outcomes (see: Menekse et al., 2013; Freeman et al., 2014). For that reason, we will spend some time each class answering questions and discussing the content in small groups.

Community Centers at UCSD: The community centers listed below are a great resource for our students to find some comfort and support. Many of them have spaces that you can use to host (for example) group study sessions. I encourage you to visit them in person (when safe!) And feel free to

reach out to them at any point. You do not need to identify as a member of these community centers to use them. They are full of wonderful people who want you to succeed!

Center	Contact	Center	Contact
ASIAN PACIFIC ISLANDER MIDDLE EASTERN DESI AMERICAN PROGRAMS & SERVICES	https://apimeda.ucsd.edu/index.html	LGBT RESOURCE CENTER	https://lgbt.ucsd.edu/
BLACK RESOURCE CENTER	https://brc.ucsd.edu/	RAZA RESOURCE CENTRO	https://raza.ucsd.edu/index.html
CROSS CULTURAL CENTER	https://ccc.ucsd.edu/index.html	WOMEN'S CENTER	https://women.ucsd.edu/
INTERTRIBAL RESOURCE CENTER	https://itrc.ucsd.edu/index.html	STUDENT VETERANS RESOURCE CENTER	https://svrc.ucsd.edu/

Values: I want our classroom to be a place where we are free to explore the material in a manner that is respectful and engaging. We should feel free to make mistakes and ask challenging questions of each other. To that end, I've included a table below that outlines what students can expect from the teaching team, and what we should be able to expect from them.

	It is expected that students will:	The students can expect that we will:
Honesty	<ul style="list-style-type: none"> demonstrate your knowledge and abilities without outside aids or looking at the answers of others during exams. 	<ul style="list-style-type: none"> evaluate your knowledge of course concepts objectively and honestly. admit if a mistake has been made, and correct the mistake.
Responsibility	<ul style="list-style-type: none"> show up to class on time, ready to think critically about, and engage meaningfully with, course material. 	<ul style="list-style-type: none"> use student-centered approaches in the classroom that have been shown to increase retention of course material, improve grades, and lower failure rates for all students, especially first-generation students and under-represented minorities (Eddy and Hogan, 2014). Start class on time.
Respect	<ul style="list-style-type: none"> use language in the classroom that is inclusive and respectful of myself and your peers. 	<ul style="list-style-type: none"> help facilitate respectful dialogue amongst students. engage with students in a respectful manner.
Fairness	<ul style="list-style-type: none"> contribute meaningfully to group discussions, so as not to take advantage of others. 	<ul style="list-style-type: none"> Create and grade assessments in a manner that is objective and reasonable. Treat all groups equally.
Trustworthiness	<ul style="list-style-type: none"> not post any of our course content (slides, practice problems, pre-reading quiz problems) on the internet 	<ul style="list-style-type: none"> respond to emails in a timely fashion, IF the answer to any question is not in the syllabus

Courage	<ul style="list-style-type: none">• say or do something when you see actions that undermine the above values.	<ul style="list-style-type: none">• happily receive constructive criticism about our teaching at any time.• say or do something when we see actions that undermine the above values.
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modified with permission from Dr. Tricia Bertram Gallant.

Please see the UCSD rules on Academic Integrity and Standards (academicintegrity.ucsd.edu). When in doubt, just ask a member of the teaching team. The teaching team and I are obligated to report all incidents of cheating to the Academic Integrity Office.

Teaching Team, Sections and Office Hours

Who	email	What	Where	When
Jasper Hsu	j2hsu@ucsd.edu	Discussion section	Solis 111	Wed 10 - 11 am
			Solis 111	Wed 11 - noon
		Office hours		
Gisselle Santiago	gisantia@ucsd.edu	Discussion section	HSS 1128 a	Mon 2 - 3 pm
			HSS 1128 a	Mon 3 - 4 pm
		Office hours		
Sindhu Daggupati	sdaggupa@ucsd.edu	Discussion section	WLH 2209	Fri 4 - 5 pm
		Office hours		
Rishika Murthy	rimurthy@ucsd.edu	Discussion section	WLH 2209	Fri 3 - 4 pm
		Office hours		
Hung-Hsiu (Nancy) Lin	hul009@ucsd.edu	Discussion section	Center 217B	Fri 8 - 9 am
		Office hours		
Henry Ngo	d2ngo@ucsd.edu	Discussion section	York 3000 A	Tue 9 - 10 pm
		Office hours		
Grace Taylor	g1taylor@ucsd.edu	Discussion section	York 3000 A	Tue 8 - 9 pm
		Office hours		
Jiarui (May) Wang	jiw148@ucsd.edu	Discussion section	Center 217B	Fri 9 - 10 am
		Office hours		

Tentative Schedule BIPN100, Winter 2023

Week	Date	Topic
1	Jan 10 - 12	membranes and membrane transport Resting membrane potential
2	Jan 17 - 19	action potentials: channels and their function action potentials: refractory periods and propagation
3	Jan 24 - 26	Synaptic transmission: vesicular release; receptors; termination; EPSPs and IPSPs; post-synaptic summation
4	Jan 31 - Feb 2	Spinal cord organization Sensory systems
4	Feb 2, in class	Midterm #1, up to and including spinal cord organization
5	Feb 7 - 9	Autonomic nervous system Endocrinology: Feedback loops, hormones, receptors, HPA axis
6	Feb 14 - 16	Skeletal muscle: excitation-contraction coupling, cross-bridges and power strokes, recruitment, contraction, metabolism
7	Feb 21 - 23	Smooth muscle contraction and regulation
7	Feb 23, in class	Midterm #2, focusing on Sensory systems to skeletal muscle
8	Feb 28 - Mar 2	Cardiac muscle: EC coupling; Action potentials Cardiac muscle: Action potentials of pacemaker cells inotropy, chronotropy, dromotropy
9	Mar 7 - 9	Cardiac muscle: EKGs; Wigger's diagram; P/V loops Blood flow, pressure and resistance Capillary exchange; Regulation of blood pressure
10	Mar 14 - 16	Renal physiology: filtration and reabsorption, secretion, excretion Measuring renal flow rates Endocrine control of renal function
11	Mar 21, 11:30 - 2:30 pm	Final exam: Comprehensive, but more on Weeks 7-10

University of California, San Diego
Consent to Act as a Research Subject

Epistemology surveys and exam performance

Who is conducting the study, why you have been asked to participate, how you were selected, and what is the approximate number of participants in the study?

James Cooke, Associate Teaching Professor, together with education research colleagues is conducting a research study to find out more about how surveys affect student learning and experience in the classroom. You have been asked to participate in this study because you are a student in a class that is being studied or used as a control. There will be approximately 1100 participants in this study.

Why is this study being done?

The purpose of this study is to create knowledge that has the potential to improve the learning and educational experience of students at UC San Diego and beyond.

What will happen to you in this study and which procedures are standard of care and which are experimental?

If you agree to be in this study, the following will happen:

- Anonymized data from from your class, including test/exam grades and survey completion rates, may be included in a research manuscript. ALL data collected will be anonymous, and used in aggregate (that means: we'll take averages of student responses and data)

How much time will each study procedure take, what is your total time commitment, and how long will the study last?

Your participation involves only agreeing to let us use your data in our analysis. It will require no time on your part above the time you put into this course without agreeing to the study.

What risks are associated with this study?

Participation in this study may involve some added risks or discomforts. These include the following:

1. A potential for the loss of confidentiality. We will not share your personally identifying data with people outside our research team. Data will only be kept in anonymized form for research purposes. Course data will not used for this research study until after final grades have been posted and will be rendered confidential by removing any identifiers before analysis. Your instructor will not know whether or not you are participating in this study until after final grades have been posted. Data from students who opt out of the study will be removed prior to data analysis. Research records will be kept confidential to the extent allowed by law. Research records may be reviewed by the UCSD Institutional Review Board.

Since this is an investigational study, there may be some unknown risks that are currently unforeseeable. You will be informed of any significant new findings.

What are the alternatives to participating in this study?

The alternatives to participation in this study are not to participate. If you choose to opt-out of participating in this research study, we will exclude your data from analysis. Whether you participate will have no impact on your experience or grade in the associated class as the professor will not know who is or is not participating in the study until after final grades are assigned.

What benefits can be reasonably expected?

There is no direct benefit to you for participating in the study. The investigator, however, may learn more about how to improve student learning, and society may benefit from this knowledge.

Can you choose to not participate or withdraw from the study without penalty or loss of benefits?

Participation in research is entirely voluntary. You may refuse to participate or withdraw or refuse to answer specific questions in an interview or on a questionnaire at any time without penalty or loss of benefits to which you are entitled. If you decide that you no longer wish to continue in this study before the end of the quarter, you will be required to contact Dr. Melinda Owens (mtowens@UCSD.EDU) and give the quarter and the course from which you would like your data withdrawn.

You will be told if any important new information is found during the course of this study that may affect your wanting to continue.

Can you be withdrawn from the study without your consent?

The PI may remove you from the study without your consent if the PI feels it is in your best interest or the best interest of the study. You may also be withdrawn from the study if you do not follow the instructions given you by the study personnel.

Will you be compensated for participating in this study?

You will not be compensated for participating in this study.

Are there any costs associated with participating in this study?

There will be no cost to you for participating in this study.

Who can you call if you have questions?

James Cooke has explained this study to you and answered your questions. If you have other questions or research-related problems, you may reach Dr. Melinda Owens at mtowens@UCSD.EDU.

You may call the Human Research Protections Program Office at 858-246-HRPP (858-246-4777) to inquire about your rights as a research subject or to report research-related problems.

Your Consent

If you consent to participate in this study, no action is needed. If you DO NOT consent to participate in this study, or you choose to opt-out at any time during the quarter, please contact Dr. Melinda Owens (mtowens@UCSD.EDU) and give the quarter and course from which you would like your data withdrawn.