

# Human Physiology I

## BIPN 100, Spring 2019

Tues, Thur, 8:00-9:20 pm, Robinson Auditorium

Instructor: **Dr. James Cooke**  
Office: 3080C York Hall  
email: [j2cooke@ucsd.edu](mailto:j2cooke@ucsd.edu) (if you email me, please include "BIPN 100" in the subject)  
Office hours: Mondays, 3:00 - 4:00 pm, 2501 Tata Hall.  
Tuesdays, 9:30 - 10:30, 3103 Tata Hall.

### Materials:

- Textbook: Human Physiology by Silverthorn, 7th edition (older versions are okay, but page numbers will likely be different.)

**Note:** in an attempt to cut textbook costs for the students, we are trying a new online tool called RedShelf. Your course materials are provided by the UC San Diego Bookstore through TritonEd and are free for the first two weeks of classes. *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 4/13/19 and you will be responsible for sourcing the materials elsewhere.

Click [here](#) to view how to access your course materials or opt-out.

For any questions about billing please contact [textbooks@ucsd.edu](mailto:textbooks@ucsd.edu).

For any questions about using your eBook please reference [RedShelf Solve](#).

If you have any trouble accessing your eBook please feel free to reach out to [help@redshelf.com](mailto:help@redshelf.com).

<b>Evaluation:</b>	pre-lecture quizzes (on TritonEd)	3%
	Discussion section attendance	3%
	surveys (beginning and end of quarter)	2 x 0.5% each = 1%
	surveys (post-midterm)	2 x 1% each = 2%
	Midterm I ( <b>Tues</b> Apr 23, 7-9 pm)	23%
	Midterm II ( <b>Wed</b> May 15, 7-9 pm)	23%
	Final Exam (Sat June 8, 8-11 am)	45%

\*There are opportunities for extra-credit work. Either of the following will result in an extra 1% bonus on the final course grade:

- 1) one-on-one interview with a research student to discuss exam strategies. Roughly 20 students will be able to participate. Estimated time is roughly 30 minutes. Details to follow.
- 2) Written assignment that involves interpreting data from the primary literature. Bonus point depends on the quality of submitted answers. Estimated time is roughly 30 minutes.

## **iClickers**

I do not use iClickers for participation points. However, I highly value in-class discussion as a tool to drive learning. For that reason, I will continue to use clicker questions in class, I just won't be counting clickers scores toward your course grade. So, if you have a clicker (or know someone who does), please bring it to class with you! If not - no worries.

## **TritonEd website for BIPN 100:**

- You can access your pre-lecture instructions and quizzes, as well as surveys.
- You can access your grades.
- You can access lecture notes. There will be lecture notes before class, and a second (complete) set of slides after class. So for each lecture, there will be a "pre" and "post" set of notes.

**Pre-lecture quizzes:** 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 TritonEd site. I will (try to) post the quizzes by midday Friday. Each quiz will be due at 11:59 pm on Sunday night. You can take each quiz twice, and I will record the higher of the two grades. I also drop the lowest quiz score of the quarter.

**Accommodations:** I am happy to make any/all accommodations possible to help my students succeed in this course. Please let me know as soon as possible about any accommodations you may require.

**Midterm Group Exams:** we are going to use group exams for a portion of our midterms. Here's how it works: you take a midterm and hand it in (pretty typical so far!). You then get into a group of 3 to 5 people. In your groups, you will then answer one of the midterm questions (they are typically 1 page long, and take ~10 minutes each) a second time. Here's how the scoring will work for group exam questions:

If your group score is higher than your individual score for that question, I will make the group score worth 25% of that question and the individual score worth 75% for that question. For example: if you got a 7/10 the first time, and a 10/10 with your group, your final score for that question will be:  $(7 \times 0.75) + (10 \times 0.25) = 7.75/10$ .

If your group score is lower than your individual score, I will toss the group score and your individual score will be the only grade that is counted.

## **Policy on missed midterm**

If you miss a midterm with a valid excuse (ie: illness with doc's note), I'll take the relevant questions on the final (from same material of the missing midterm) and make them worth the missing 23%.

## 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.

	<b>It is expected that students will:</b>	<b>The students can expect that we will:</b>
<b>Honesty</b>	<ul style="list-style-type: none"> <li>demonstrate your knowledge and abilities without outside aids or looking at the answers of others during exams.</li> </ul>	<ul style="list-style-type: none"> <li>evaluate your knowledge of course concepts objectively and honestly.</li> <li>admit if a mistake has been made, and correct the mistake.</li> </ul>
<b>Responsibility</b>	<ul style="list-style-type: none"> <li>show up to class on time, ready to think critically about, and engage meaningfully with, course material.</li> </ul>	<ul style="list-style-type: none"> <li>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).</li> <li>Start class on time.</li> </ul>
<b>Respect</b>	<ul style="list-style-type: none"> <li>use language in the classroom that is inclusive and respectful of myself and your peers.</li> </ul>	<ul style="list-style-type: none"> <li>help facilitate respectful dialogue amongst students.</li> <li>engage with students in a respectful manner.</li> </ul>
<b>Fairness</b>	<ul style="list-style-type: none"> <li>contribute meaningfully to group discussions, so as not to take advantage of others.</li> </ul>	<ul style="list-style-type: none"> <li>Create and grade assessments in a manner that is objective and reasonable.</li> <li>Treat all groups equally.</li> </ul>
<b>Trustworthiness</b>	<ul style="list-style-type: none"> <li>not post any of our course content (slides, practice problems, pre-reading quiz problems) on the internet</li> </ul>	<ul style="list-style-type: none"> <li>respond to emails in a timely fashion, <b>IF</b> the answer to any question is not in the syllabus</li> </ul>
<b>Courage</b>	<ul style="list-style-type: none"> <li>say or do something when you see actions that undermine the above values.</li> </ul>	<ul style="list-style-type: none"> <li>happily receive constructive criticism about our teaching at any time.</li> <li>say or do something when we see actions that undermine the above values.</li> </ul>

modified with permission from Dr. Tricia Bertram Gallant.

Please see the UCSD rules on Academic Integrity and Standards ([academicintegrity.ucsd.edu](http://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.

**Discussion Sections:** will be (mostly) mandatory this quarter. Please see the table below to know when Discussion Section is mandatory or not. Please note: you can attend any discussion section you like (this info is available on WebReg and in the section below). However: in the event that there are more students attending a particular section than there are seats available, preference will be given to students registered in that section.

<b>Week</b>	<b>Discussion section?</b>	<b>Topic to be discussed</b>
1	No discussion section this week	
2	<b>Mandatory participation</b>	Membrane potential
3	<b>Mandatory participation</b>	Action potentials
4	Optional participation	Review material from Weeks 1-3
5	<b>Mandatory participation</b>	sensory systems
6	<b>Mandatory participation</b>	autonomic and endocrine
7	Optional participation	Review material from weeks 4-6
8	<b>Mandatory participation</b>	smooth muscle
9	<b>Mandatory participation</b>	cardiovascular system
10	Optional participation	Review material from entire course

**Grades** will follow the scheme below:

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

## Teaching Team, Sections and Office Hours

Who	email	What	Where	When
Tami Gilderman	<a href="mailto:tgilderm@ucsd.edu">tgilderm@ucsd.edu</a>	Sections	WLH 2209	Wed 1:00 - 2:00
			WLH 2209	Wed 2:00 - 3:00
		Office hour	Price Centre Commuter Lounge	Wed 11 - 1
Dylan Hutson	<a href="mailto:dhutson@ucsd.edu">dhutson@ucsd.edu</a>	Section	WLH 2209	Friday 8 - 9
		Office hour	Price Theater Lobby	Tues 11 - noon
Angela Pham	<a href="mailto:anp077@ucsd.edu">anp077@ucsd.edu</a>	Sections	WLH 2209	Friday 3 - 4
		Office hour	Starbucks	Fri 1:30 - 2:30
Nevin Sarao	<a href="mailto:nsarao@ucsd.edu">nsarao@ucsd.edu</a>	Sections	WLH 2209	Mon 1 - 2
		Office hour	Peet's coffee (RIMAC)	Thu 4-5 pm
Andy Zhou	<a href="mailto:acz002@ucsd.edu">acz002@ucsd.edu</a>	Sections	WLH 2209	Friday 9 - 10
		Office hour	Muir Woods	Fri 10:05 - 11:05

## Tentative Schedule BIPN100, Spring 2019

Date	Topic
Apr 1 - 5	membranes and membrane transport Resting membrane potential
Apr 8 - 12	action potentials: channels and their function action potentials: refractory periods and propagation
Apr 15 - 19	Synaptic transmission: vesicular release; receptors; termination; EPSPs and IPSPs; post-synaptic summation
Apr 22 - 26	Spinal cord organization Sensory systems
<b>Tue Apr 23, 7:00-9:00pm</b>	<b>Midterm 1</b>
Apr 29 - May 3	Autonomic nervous system Endocrinology: Feedback loops, hormones, receptors, HPA axis
May 6 - 10	Skeletal muscle: excitation-contraction coupling, cross-bridges and power strokes, recruitment, contraction, metabolism
May 13 - 17	Smooth muscle contraction and regulation Cardiac muscle: excitation-contraction coupling; Action potentials
<b>Wed May 15, 7:00-9:00pm</b>	<b>Midterm 2</b>
May 20 - 24	Cardiac muscle: Action potentials of pacemaker cells inotropy, chronotropy, dromotropy Cardiac muscle: EKGs; Wigger's diagram; P/V loops
May 27 - 31	Blood flow, pressure and resistance Capillary exchange Regulation of blood pressure
June 3 - 7	Renal physiology: filtration, reabsorption, secretion, excretion Measuring renal flow rates Endocrine control of renal function
<b>June 8, 8-11 am</b>	<b>Final exam: Comprehensive</b>

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

Investigating the Impact of Pedagogical Choices on University Student Learning and Engagement

***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?***

Gabriele Wienhausen, Director of the Teaching and Learning Commons, together with her education research colleagues is conducting a research study to find out more about how pedagogical choices 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 500,000 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:

- Your data from this class including grades, homework and exam submissions, and survey responses will be included in the analysis to determine the effectiveness of the pedagogical techniques used in this course compared to other similar courses. 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 be 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, simply respond to the online opt-out form here: <https://goo.gl/forms/JSBRjEmkES6W6xYc2>. If you decide to opt out after the quarter has ended, you must contact Ying Xiong ([yix184@ucsd.edu](mailto:yix184@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?***

Gabriele Wienhausen and/or her colleague has explained this study to you and answered your questions. If you have other questions or research-related problems, you may reach Gabriele Wienhausen at [gwienhausen@ucsd.edu](mailto:gwienhausen@ucsd.edu) or (858) 534-3958.

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 submit this form online at <https://goo.gl/forms/JSBRjEmkES6W6xYc2>. Your instructor will not have access to the list of students who opted out until after grades are posted. Note that you must separately opt-out of the study for each course involved in this study.

[ ] I am not 18 years or older or I do not consent to anonymized research use of my data from the course specified below.

Course name: \_\_\_\_\_ Course section number: \_\_\_\_\_ Term: \_\_\_\_\_

Name: \_\_\_\_\_

PID: \_\_\_\_\_