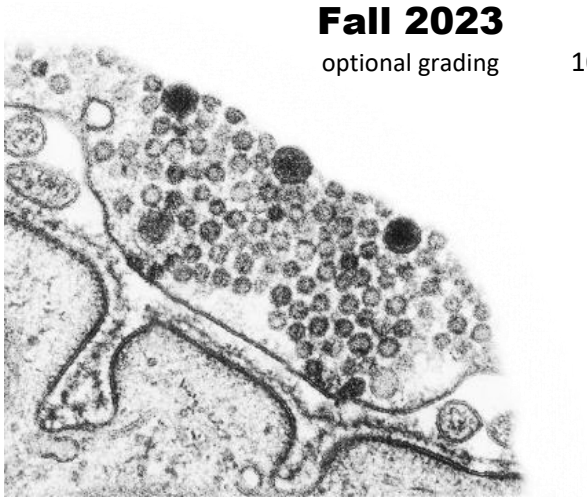
HPHY 322

Human Physiology I



Fall 2023
optional grading

Tue / Thu
10:00 - 11:20 AM

Room
PLC 180

Pre-requisites
CH 221-223
BI 211-212
HPHY 212

Final Exam
Dec 8th at 8am

TEACHING TEAM

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LAB INSTRUCTORS

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Course Description

The focus of this course will be the nervous system, muscle physiology, and special senses. Discussions will include ion movement, action potentials, synapses & receptors, the central, peripheral and autonomic nervous systems, excitation-contraction coupling in skeletal muscle and the mechanisms specific to vision, hearing, smell & taste, in addition to the somatosensory system. Information will be uncovered as you create your own unique book called your "External Brain", which you will use both in class and during examinations as you apply your knowledge to novel clinical scenarios. Complementary laboratory experiences will provide the opportunity to collect data on yourself and lab-mates using the PowerLab system. Our goal is for you to become deeply knowledgeable about human physiology and be able to apply the information you have compiled to clinical or research situations.

Course Details

Textbook Required*
*reserve copies available in science library
Human Physiology: cells to systems
Sherwood, 9th Ed

Teams and Zoom
Please download Microsoft Teams and Zoom for communicating and attending lectures remotely

NB Forums
Sign up for NB to download and discuss the lecture notes.

Canvas
Course materials, communication, and announcements will be posted to Canvas.

Intended Learning Outcomes

By the end of this course, you should be able to:

1. Demonstrate knowledge and understanding of the terminology, concepts, and relationships related to cell membrane, nerve, and skeletal muscle physiology.
2. Explain the core concepts of Flow-Down Gradients and Cell-Cell Communication using physiological examples.
3. Develop experimental hypotheses, conduct experiments, present data graphically, and incorporate results into a concise discussion on a post-lab write-up
4. Engage fully in evidence-based learning practices during in-class activities, discussions, and problem solving
5. Effectively communicate your ideas while using appropriate scientific language and formatting etiquette during creation of your written work.

Accessibility & Accommodations

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that are not accessible to you.

You are also encouraged to contact the Accessible Education Center (uoaec@uoregon.edu) in 164 Oregon Hall or call (541) 346-1155 .

If you have any **AEC documentation** regarding the course or taking exams, please get that information to me as soon as possible and discuss a plan with me if necessary.

Expected Workload

The University of Oregon defines the expected time commitment workload for a 5-credit course as 150 hours (3 hours per credit per week). For this 10 week course, you can expect to spend up to 15 hours per week prepping for class, attending lectures & labs, reading, studying, completing activities & assignments, and exams.

Course Philosophy

It is our intention to provide the best environment to facilitate active learning. You will be encouraged to discuss, challenge, and critique information by interacting with instructor, class Learning Assistants (LAs), and fellow students. You will be challenged to "own" the knowledge of physiology and apply it to unique situations. We also believe that a great laboratory experience can make learning about a topic more engaging, meaningful and successful. Great laboratories include small group experiences in which you can practice what you are learning, and "do" physiology as the experts would. It is a place that hands-on, practical and visual learners can make lecture content tangible and concrete. It is a place that creative and original ideas can be explored, while oral and written communication skills can be enhanced. Your class and lab instructors will provide a positive environment for diverse learners to achieve their goals and will encourage your regular participation. We believe in the strength of diverse voices in the classroom and believe that every student can succeed in the class.

- **You can expect your teaching team** to use evidence-based teaching methods, to make the big class feel small, to work as a team, to build relationships, to help you clarify misconceptions, and be dedicated to your success.
- **You are expected** to be present for every lecture and lab experience, to have class preparations and assignments completed on time, to check Canvas regularly, and to actively participate in discussions and activities.
- **Together**, we can create a successful and enjoyable learning environment that will prepare you for future learning in the pre-health sciences.

Equity, Diversity, and Inclusion

In the Human Physiology Department, we foster engaging, inclusive, and evidence-based teaching. Maintaining a safer classroom environment where all students feel they BELONG, are REPRESENTED, and have a VOICE is not only the responsibility of the teaching team, but also the responsibility of every member of the class. We must all promote a learning environment where every race, color, sex, age, religion, disability, sexual orientation, gender identity, and gender expression is celebrated. Let's all embrace the diversity of this class as a resource, strength, and benefit! Our intention as a teaching team is to promote equitable learning, and to be mindful and respectful of diversity and inclusion in class and lab. Your suggestions for how we might do this better are encouraged and greatly appreciated!

Required Reporting

As an instructor, one of my goals is to help create a safe learning environment for my students and for the campus. I am a "Student-Directed Employee" meaning that I will only report student disclosures of sex/gender-based discrimination or harassment/violence if the student requests that I share it with the University (unless there is imminent risk of serious harm). I will always be available to listen and support you in any way I can, and I will provide students with resources to support your choices regarding such instances.

Grading Criteria

Note: grades are not assigned on a curve, so you are NOT in competition with your fellow students.

lecture 80 %	**Class Engagement**	5%	In-class and assignment opportunities. Use NB for grade rounded up	
	External Brain (EB)	10 %	Pre-class assignments due before the start of lecture	
	Quizzes	5 %	Due Monday. Retake to achieve a score of 90% on the quiz.	
	Exam 1:	15 %	Individual Part 1 (*Thu wk 3*)	Group Part 2 (*in lab week 4)*
	Exam 2:	20 %	Individual Part 1 (*Thu wk 7*)	Group Part 2 *(in lab week 8*)
	Final Exam	25 %	Cumulative Final with no Part	

lab 20 %	**Lab participation**	5 %	Pre-lab assignments, in class activities, presentations, etc.
	Post-Lab Write-up	15 %	Post-lab assignments to be submitted prior to the next lab
	Note: lab attendance is required, but flexibility will be allowed (one free absence*) If you are sick or showing symptoms, please connect with us for a plan to work though lab materials.		

Course Requirements

Class Engagement and Participation (5%):

Respond to at least 80% of in-class questions and engagement assignments to receive full 5% grade. Also, participate in at least 5 NB posts and your final grade will be rounded up to the nearest whole number (e.g. 89.03 rounds to 90%).

External Brain (EB) Pre-Class Assignments (10%):

EB's are pre-class assignments to help you begin learning before you come to class and will serve as your own reference for the learning objectives. EB assignments will be due in Canvas as PDF's prior to the start of class. Be sure to check that assignments are submitted and upload fully. EBs without necessary citations will be given a zero for that assignment. Late EBs will receive a 5 pt deduction or a zero if submitted after 1 week. The lowest EB grade will be dropped.

Quizzes (5%):

Each week will have an online quiz. Quizzes will be available on Canvas from Friday to Monday at 11:59 pm. The quizzes will be cumulative and give you an opportunity to practice questions related to the material.

Quizzes are meant to be done independently as a learning tool. It is low stakes as you can take the quizzes as many times as you. One lowest or missed quiz grade will be dropped.

Exams (60%):

There will be 3 full exams (2 midterms and 1 final) as well as 7 weekly "mini-exams" taken in class on Thursdays. Exams are cumulative and may consist of True/False, Matching, Multiple Choice, and Short Answer/Written Response questions.

The mini-exams will be taken at the end of class on Thursdays. They will be short and consist of a small number of questions related to the current and previous week. Research has shown that students who complete "test" questions more often learn better than studying alone. The goal of these mini-exam questions is to give weekly exam practice in a low stakes assessment. The lowest two mini-exam grades will be dropped, and if you complete 5 or more and they can only help your grade. These will contribute to 5% of your overall exam grade. If you complete 5+, they will only be included if they improve your grade. Complete 4 or less and your percentage will be included as is (see exam paradigm explanation).

The midterm exam grades will consist of two parts: ***Part 1***: Individual exam in class (95% of grade) and ***Part 2***: Group exam completed in lab (5% of grade). The individual exam will be entirely closed book. Part 2 will be a group portion of the exam completed at the start of your lab the following week. It may have questions from the individual exam and/or entirely new questions. Notes and books are allowed, but no camera devices.

The final exam must be completed, as scheduled, in order to pass the course and receive a letter grade. In the rare event that a midterm must be missed, an alternate weighting system will be used (e.g. final exam worth more).

The expectation is that students must participate in all 3 exams and at least 5 mini-exams. After completing all exams, the scores will be calculated using the following grading paradigm to determine the highest total for the final exam grade.

Exam paradigms: The goal in this class is that you are learning, but we recognize that sometimes that doesn't happen fully by the time you are first tested on new material. We have designed an exam grading paradigm to reflect and support learning that happens throughout the term. If one of your midterms is not as successful as you might hope for, it might not be included in the overall exam grade.

Exams are weighted as a percentage of the total exam grade. The best weighting paradigm will be used for your grade.

	A	B	C
Midterm 1	14	0	20
Midterm 2	18	20	0
Final Exam	23	35	35
*Mini-Exams	5	5	5
Total Exam Grade	60%	60%	60%

	A	B	C
Midterm 1	15	0	20
Midterm 2	20	20	0
Final Exam	25	40	40
*Mini-Exams	0	0	0
Total Exam Grade	60%	60%	60%

*If you complete 5 or more mini-exams, then those scores can only help you. If it lowers your grade then it won't be included. If you don't complete enough of the mini-exams then the paradigms will include the mini-exam %.

Note: throughout the term Canvas will reflect grades according to paradigm A. After the final exam is completed, the overall course exam grade % will be adjusted to the highest scoring paradigm.

Lab Engagement (5%):

Lab engagement grade will consist of pre-lab assignments, presentations, attendance, professionalism, and participation during in lab activities and discussions. You may repeat questions in the pre-labs as many times as you need. Pre-labs not submitted prior to your lab time will receive a zero. **NOTE**: **Pre-labs are due prior to lab and late/ missed pre-labs are not dropped.*** Check in with your lab instructor before you leave to finalize your participation that day.

Lab Attendance (*):

Lab attendance is required and expected. You can miss one lab without penalty provided that in-lab content is made up. Additional absences will result in a 2% reduction from final overall grade.*

Post-Lab Write-ups (15%):

Each student must write their own original lab write-up and create their own original figure/graphs. See **lab report rubric** for details regarding expectations. Late post-lab assignments will lose pts for each day late (reports -10 / clinicals -5).*

Professionalism (*):

Week 6 will be a formative feedback based on rubric. Any points deducted from the week 11 rubric will be deducted from final percentage grade (1 point = 1% deduction)

**see absence and assignment make-up info under Course Policy section*

Grade Scale:

A+	(97 - 100%)	B+	(87 - 89.9%)	C+	(77 - 79.9%)	D	(60 - 69.9%)
A	(93 - 96.9%)	B	(83 - 86.9%)	C	(73 - 76.9%)	F	(Below 60%)
A–	(90 - 92.9%)	B–	(80 - 82.9%)	C–	(70 - 72.9%)		

Tentative Schedule

	Date	Topic	Lab	Due
1	T 9/26	Intro to Physiology Sequence	Week 1: Intro and Scientific Method	Survey Week 1 Quiz
	R 9/28	Cell Membrane and Potentials		
2	T 10/3	Nernst Equation and Action Potentials	Week 2: Nerve Conduction Velocity	Video & Letter Pre-Lab Week 2 Quiz
	R 10/5	Graded Potentials and Synapses		
3	T 10/10	Receptors and G-Protein Cell Signaling	Week 3: Stimulus Response Relationship	Pre-Lab Week 2 Report Week 3 Quiz
	R 10/12	**EXAM 1**		
4	T 10/17	Skeletal Muscle ECC	Week 4: **Exam 1 Part 2** (group exam) Skeletal muscle contractile properties	Pre-Lab Week 3 Write-up Week 4 Quiz
	R 10/19	Skeletal Muscle Structure and Force		
5	T 10/24	Force Production and Fiber Types	Week 5: Prolonged Contraction and Fatigue	Pre-Lab Week 4 Write-up Week 5 Quiz
	R 10/26	Nervous System and Reflexes		
6	T 10/31	Sensory Receptors and Neurons	Week 6: Reflexes and Reaction Times	Pre-Lab Week 5 Write-up Week 6 Quiz
	R 11/2	Two-Point Discrimination - ANS		
7	T 11/7	Autonomic Nervous System	No Lab – Lt assignment	Pre-Lab Week 6 Write-up Week 7 Quiz
	R 11/9	**CUMULATIVE EXAM 2**		
8	T 11/14	TBD	Week 7: Autonomic Nervous System	Pre-Lab Week 7 Write-up Week 8 Quiz
	R 11/16	Motor Pathway and Brain Regions		
9	T 11/21	Vision	No Lab – Lt assignment	
	R 11/23	No Class (Thanksgiving Holiday)		
10	T 11/28	Auditory and Vestibular	Week 10: Special Senses	Pre-Lab Week 8 Write-up Week 10 Quiz
	R 11/30	Taste and Smell		
11	F 12/8	**Cumulative Final Exam at 8am on Friday December 8th**		

Course Policies

Student Conduct Code Policy:

https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code

When completing External Brain assignments and Lab Write-up, be aware that re-wording the ideas of others can lead to a charge of plagiarism. Please do not work with your groups or collaborate when writing External Brain assignments or Lab Reports. Use citations whenever appropriate.

Academic Misconduct:

The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at: http://researchguides.uoregon.edu/citing-plagiarism.

Absence and Make-up Policy:

Only absences approved under the UO Attendance and Engagement policy will be considered excused (e.g. verifiable university-sponsored events, religious accommodation, and accessible education). All other absences will be subject to the following guidelines.

Lecture absence:
The engagement and participation opportunities earned during lecture will not be made up regardless of reason for absence. However, you only need to achieve a certain percentage of engagement to still earn full credit, so occasionally forgetting your clicker or being sick from lecture should not impact your overall engagement scores.

Late EB (pre-class) assignments will be subject to a score deduction but can still be submitted within 1 week of the original deadline. After 1 week, the score will be a zero.

Lab absence:
Lab attendance is required and expected, but we do recognize illnesses and other challenges will occur. You will be allowed one absence from lab without penalty provided the in-lab content is made up, so reach out to your lab instructor as soon as possible to develop a plan to make up the missed in-lab work. All additional absences will result in a 2% reduction from final overall grade.

Pre-lab assignments in Lt must be submitted prior to your lab time or it will receive a zero. If a pre-lab is missed in conjunction to the one lab absence allowed, that pre-lab will be accepted prior to makeup of the in-lab content.

Along with one excused absence without penalty, you will also be allowed to submit one lab associated assignment (e.g. lab report) up to 2 weeks late without penalty. After 2 weeks, the normal deductions will apply for each additional day late. All other late lab related assignments will be subject to the normal late deductions.

AI tech policy:

Plagiarism is partly defined as the act of representing the work of another as your own without giving appropriate credit and submitting it to fulfill academic requirements. Doing academic work requires that the work you submit is your own and a paper that is written, in part or as a whole, by AI is not considered your own original work. The source of the AI program/software used does not matter. Using written responses from these AI language generators in your papers is considered a form of plagiarism.

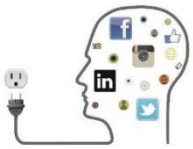
Proper use of AI: ChatGPT and other AI software should be viewed as a "really smart friend." You can consult it, discuss with it, and seek clarifications about course concepts. However, it should be treated just like your roommate or smart friend in an academic setting. Your friend cannot write things for you. AI cannot write things for you. The work you submit should be your own work.

Be critical: AI generators can be very helpful, but you must always keep a scientific and critical mindset when reviewing any responses. Do not become complacent and assume that any information you receive is actually correct.

No Citations of AI: Just as you cannot cite your roommate or smart friends in your papers, you should not cite AI generators in your work. If the AI is helping you understand physiologic concepts, you should seek out the primary sources that the AI is using

Help and Resources

Technology and Learning:



We will use a variety of technologies in class, but none of those involve Facebook, Amazon Shopping, etc. Please, be ready to disconnect from the world to avoid distractions during class.

Research suggests that the mere ***presence of a smartphone*** *within your reach significantly reduces your cognitive capacity* even when it's off! (Ward et al. 2017).

Remote learning can exacerbate this challenge. It is very easy to get distracted during online meetings. Switching your focus to another activity can disrupt the learning process. Even using the chat room when others are talking can take you out of the moment and you can miss things. We will try to keep you engages in various ways, so please do you best to stay focused on what we are doing during class!

Laptops or tablets are allowed for taking notes, following along with an article, or occasionally accessing relevant material during class discussions. ***However***, *be aware that typing notes on laptops may not be the best process for learning* (Mueller and Oppenheimber, 2014). I recommend taking notes by hand and using those notes to review slides from class.

Student Support and Wellbeing:

The following resources are available to you as a student.

- University Health Services
  or call (541) 346-2770
- University Counseling Center
  or call (541) 346-3277 or (541) 346-3227 (after hrs.)
- MAP Covid-19 Testing
- Corona Corps
  or call (541) 346-2292
- Academic Advising
  or call (541) 346-3211
- Dean of Students
  or call (541)-346-3216

Help and Resources

If you are feeling lost or overwhelmed:

Please let me know right away and schedule a time to meet and talk about ways to help.

Have a general question about the course?

Check the syllabus first. If you still have a question or want to confirm you can always contact the teaching team.

Questions about material and/or articles?

Post questions on NB forums for other students and the teaching team to discuss and answer.

Try to come to office hours. You can always email to schedule a time to meet if normal office hour times do not work.

Need help finding articles?

Try PubMed and
Web of Science

Mueller and Oppenheimer. The Pen is Mightier than the Keyboard: Advantages of Longhand over Laptop Note Taking. *Psychological Science.* 25(6): 1159-1168, 2014.

Ward, Duke, Gneezy, and Bos. Brain Drain: The Mere Presence of One's Own Smartphone Reduces Available Cognitive Capacity. *Journal of the Association for Consumer Research*. 2(2): 140-154, 2017.