

Human Physiology BIOL 2420-070 Course 2876

Fall Semester, 2020, T/R 6-8pm; Sandy Center, room TBD

Instructor: Dr. Sarah García, Ph.D., she/her/hers

Email: Sarah.Garcia@utah.edu

E-mails are welcome any time, and I generally respond within 24hrs.

Office Hours: Zoom office hours on Wednesdays 3-4pm and by appointment

Teaching Assistants: Zachary Ta, u0847565@utah.edu

Boris Tirado, u6014453@utah.edu

TA-led discussion and review sessions: TBA

Required Materials: This course uses the text *Human Physiology, an Integrated Approach*, 8th ed. by Silverthorn, ISBN-13: 9780134605197. Textbooks are available at the University of Utah Sandy bookstore and the main campus store. The latest version of this text is not necessary, and it may be in any format: loose-leaf, bound, or electronic (e-text is \$116).

Course Description: Principles of human function.

Prerequisites: C- or better in (BIOL 1210 OR BIOL 1610 OR AP Biology score of 4 or better) AND (CHEM 1110 OR CHEM 1130 OR CHEM 1210 OR CHEM 1211 OR AP Chemistry score of 4 or better).

Course Goals:

1. Describe how the human body functions at the molecular, cellular, tissue, organ, and systemic levels.
2. Appreciate how physiology is intertwined with other disciplines. (e.g., chemistry, physics, math)
3. Explain the function and processes of the endocrine, nervous, muscular, cardiovascular, pulmonary, urinary, digestive, immune, and reproductive systems.
4. View the human body as an integration of organ systems and understand how its function depends upon metabolism, signaling and transport mechanisms, negative feedback, and homeostasis. Relate these concepts to real-life scenarios.
5. Be able to predict the consequences of homeostasis disruption and know how this leads to pathological states.
6. Demonstrate critical thinking skills, and appreciate how our physiological knowledge has been obtained through the scientific method.

Course Structure:

-Due to the current COVID-19 pandemic, lecture material will be conveyed in pre-recorded videos using PowerPoint and tablet drawing/writing (please see “class recordings” under class policies). These lectures will be posted by Friday of the previous week. During scheduled class time, you will meet in small groups (15 students total per group as per social distancing regulations) for a **one-hour time slot during our scheduled class meeting (T/R, 6-8pm)**. This one-hour time slot will be spent clarifying student questions on material covered in video lectures and working on process-oriented guided-inquiry learning modules (a series of questions that guide you through class topics). We will also periodically use discussions, demonstrations, and in-class exams to help you learn and apply your physiologic knowledge. There will be 4 out-of-class graded homework assignments, 4 in-class primary literature discussions, and 4 ProctorU exams.

- The University of Utah recommends 2-3 hours of study outside of class for each credit hour. This will be 8-12 hours outside of class per week. Read the relevant pages in the text both before and after watching video lectures being sure to study all figures and diagrams. Watch each video lecture and take thorough notes on the material covered before attending class (class will not be productive unless you have completed these videos and have notes to reference) and make note of specific questions that arise. During class, ask questions, participate fully in answering the module questions and interact with peers. Review each guided inquiry learning document and your video lecture notes after each class, and do start studying at least one week in advance of each exam.

-Reading of the text outside of class is expected. We will not cover all topics in-depth, and when relevant, the instructor will guide your out of class reading by providing specific pages for your focus. The Concept Check questions at the end of each section in the text are a useful way to test your mastery of the topics. Figures are important, so do not skip the Figure legends.

Homework Assignments:

-There will be 4 homework assignments due ~1-2 weeks before each exam, and they will be graded and returned to you before the exam takes place. Late homework assignments will not be accepted; do not email the instructor if you miss the assignment (unless it is to convey a university-sanctioned reason for missing the assignment).

-These homework assignments will be a series of questions that build off of lecture and in-class material.

-You are to complete these homework assignments on your own using material covered in class—**if your answers are irrelevant to class material, you will not receive credit for them.** In addition, all assignments will be run through a plagiarism checker as plagiarism and cheating in all forms are academic misconduct and may result in university sanctions. Please review the student handbook for further details on how plagiarism and cheating are defined.

Primary Literature Discussions:

It is important to understand the origin of scientific knowledge. Original research is conducted by a researcher(s), the results of which are then published in scientific journals. These publications are known as primary literature. Prior to publication, other expert scientists within the same field of research will evaluate the merit of the experiments, results and interpretations. Thus, this literature is called “peer-reviewed”. We will have 4 primary literature discussions throughout the semester. The class will be assigned an article and you will be expected to have read and annotated the article prior to attending class. While challenging, these discussions will help you understand the way in which knowledge is gained through the scientific method, provide a deeper understanding of the concepts learned in class, and will show you the incremental and rigorous nature of our scientific knowledge. During the discussion, you must 1) ask at least 2 questions, 2) answer at least 2 questions, and 3) have your annotations reviewed by either the instructor or one of the TAs in order to receive full credit for these discussions.

In-class work: Each week during your in-class slot, you will work on a series of guided questions. You will receive 5 pts each of the 15 weeks for completing these questions accurately. Of the 15 grades you will earn, the 3 lowest will be dropped (i.e., the top 12 grades will count) for a total of 60 possible points. **If you miss an in-class (whether virtual or in-person) session, please do not e-mail the instructor asking to make up the in-class work. This will simply count towards one of your three dropped grades.**

Exams: There will be 4 non-cumulative exams (100pts each, 400pts total for the semester) throughout the semester and there will not be a comprehensive final exam. These exams will be proctored using ProctorU. There will be an instructor-led online review session and a separate TA-led online review session prior to each exam.

ProctorU: Before you can take your exam, you need three things,

1. A ProctorU Account
2. The ProctorU browser extension in Google Chrome
3. A Webcam

-You will need to install the ProctorU Extension. Please download it [here \(Links to an external site.\)](#) for Chrome browser. Chrome is the ONLY Browser that will work! For instructions on how to sign up and install the extension, visit [TLT's student guide to setting up ProctorU](#). Have questions about ProctorU? Check out [TLT's ProctorU FAQ guide](#).

-If you run into issues during your test, please refer to the [ProctorU help articles \(Links to an external site.\)](#). If problems persist, please send an email detailing the issues to classhelp@utah.edu & your instructor.

-Online proctoring allows you to take the exam from anywhere in the world as long as you have a good reliable internet connection, webcam, and microphone. Be sure to find a **secure/quiet room**. The University is paying for the ProctorU fee. It is recommended that you set up your account at least 48 hours before the first available exam date.

-If you have questions regarding exam scheduling/rescheduling, please contact Exam Services via email examhelp@utah.edu or call **801-581-6112, Option 3** (M - F 8:00am-5:00pm, US Mountain Time Zone).

Evaluation Criteria:

Exams: 400pts (4 exams x 100pts)
Homework: 100pts (4 assignments x 25pts)
In-class work: 60pts (15 assignments x 5pts, **lowest 3 are dropped**)
PLDs: 40pts (4 assignments x 10pts)
Total: 600pts

Grading Policies:

-Your grade is your own responsibility, and every student has the same opportunities to earn points. Do not explain to the instructor that you need a certain grade to get into your program of choice. Focus on mastering the physiology concepts so that you will be sufficiently prepared for your career of choice or other life endeavors.

- Final grades for the course will be calculated based on the percentage (%) of total possible points earned throughout the semester. While there may be some adjustment of grades at the end of the semester, you are guaranteed at least the following grade structure.

A 94-100%	B- 80-82%	D 60-69%
A- 90-93%	C+ 77-79%	E or F <60% Failing
B+ 87-89%	C 74-76%	
B 83-86%	C- 70-73%	

Contested Grades: You may turn in a hardcopy inquiry of contested grading for consideration. The inquiry must be accompanied by the complete original graded work, and the original work must have been originally completed in non-erasable pen (or typed). In other words, exam questions completed in pencil may not be contested. You must address which question or aspect of the graded piece you are contesting and why the grading is incorrect. This should be done within 1 week of the graded piece being returned, and only original work will be considered. The instructor will evaluate your inquiry, and may or may not make subsequent changes to your graded piece. Please note that your entire exam/assignment will be subject to reconsideration, and your grade may go up or down.

Incomplete grades: Incomplete grades for the semester will only be given due to an unfortunate event that may occur near the end of the semester, and only if you are passing with a C at the time of the crisis and have completed 80% of the course. The terms of completing the grade will be a contract between instructor and student. You can read about UU grading and the incomplete policy here: <https://regulations.utah.edu/academics/6-100.php>

Attendance, lecture notes and due dates:

-Complete viewing of video lectures is expected with no exceptions given the flexibility of pre-recorded lectures. Your attendance during your assigned small group in-class session is also expected, whether conducted via Zoom or in-person. The University of Utah student handbook identifies school-sanctioned absences, such as (though not limited to) medical illness accompanied by a doctor's note. Other events not specifically covered by the university handbook do not qualify as exempt absences.

-If you miss or plan to miss an in-class session (whether it is via Zoom or in-person), do not e-mail the instructor explaining why (unless it is a school-sanctioned absence accompanied by documentation for attendance purposes only), and do not ask for class notes or otherwise missed material. Obtain notes from a classmate, as the lecturer will not provide class notes under any circumstances; you are responsible for note-taking.

-There are no makeup assignments or exams, late homework will not be accepted and there are no makeup primary literature discussions. Plan accordingly.

Examination policies

-There are no makeup exams. Unless there is an extenuating circumstance that meets university-sanctioned excused absence regulations and is accompanied by documentation, examination will not be offered after the exam date. If your extenuating circumstance meets university-sanctioned absence regulations, you may sit an exam after the in-class exam date. **However, it will be an oral exam if the exam has already been graded and returned to the class.**

-In extenuating circumstances, you may request to take an exam early. You must communicate this intent **at least 10 days in advance of the exam**, and you may sit the exam **no more than 5 days in advance of the exam**. The date, time, and location are subject to instructor approval and scheduling.

-Students caught cheating or plagiarizing on an exam or homework will receive a failing grade for the entire course and the matter will be turned over to the appropriate student disciplinary committee.

-During ProctorU examinations, students must follow all ProctorU guidelines including, but not limited to: taking the exam in a room with no one else present, not leaving your computer until the exam is complete, not using your cell phone, not using any written material or notes, etc.

- Use of a cell phone or any other device except your testing computer during an exam will result in a 0.
- Cheating on an exam will result in a 0 and course failure.

General class policies:

-You are expected to follow the University of Utah's academic code of conduct, including policies on plagiarism, found at <http://regulations.utah.edu/academics/6-400.php> (Links to an external site.) and can find all other regulations at <http://regulations.utah.edu> (Links to an external site.).

-This classroom (whether virtual or physical) is an identity-affirming space, and you are expected to respect the identities of fellow students, including (though not limited to) identities such as nationality, ethnicity, veteran status, ability status, sexual orientation, gender, and in general all LGBTQIA+. This includes, though is not limited to, using self-identified names and pronouns of your classmates, and in general addressing everyone in the class with respect. Behavior otherwise will not be tolerated and **you will be asked to leave the lecture at the sole discretion of the instructor.**

-Please put your cellphone on silent before the start of class. To facilitate the learning of all classmates, please put away your cellphone for the duration of class.

- Actively and fully participate in class (whether virtual or in-person). This means working on class material without outside distractions.

-Any student exhibiting plagiarism or cheating will receive a failing grade for the course and the matter will be turned over to the appropriate student disciplinary committee.

-Video recording of any kind during class is not permitted for privacy reasons (FERPA) though see class recording policy.

Course drop policy: The University of Utah policy for dropping courses can be found in the Class Schedule. **September 4th** is the last day to drop classes, and **October 16th** is the last day to withdraw from classes. Contact the registrar for more information.

Class recordings: If you have a documented and approved ADA accommodation, you may have the right to record lectures under Section 504 of the Rehabilitation Act of 1973. It is your obligation to go through the appropriate approval process with the University of Utah's Center for Disability Services. Otherwise, it is **explicitly prohibited to video or audio record any component of this course. It is furthermore prohibited to share any class content (including instructor-recorded lectures) through any means (including, but not limited to, social media).** Please see University of Utah regulations for more information on copyright infringement.

COVID-19 pandemic:

Face coverings: Face coverings are required in all in-person classes for both students and faculty. Based on CDC guidelines, the University requires everyone to wear face coverings (they must cover the nose and mouth completely with a nose wire) in shared public spaces on campus, including our classroom. As a reminder, when I wear a face covering, I am protecting you. When you wear a face covering, you are protecting me and all of your classmates. If you forget your face covering, I will ask you to leave class to retrieve it. If you repeatedly fail to wear a face covering in class, I will refer you to the Dean of Students for a possible violation of the Student

Code. Note that some students may qualify for accommodations through the Americans with Disabilities Act (ADA). If you think you meet these criteria and desire an exception to the face covering policy, contact the Center for Disability and Access (CDA). **Please note that face shields alone are not an acceptable form of face covering unless also worn with a covering or mask for the nose and mouth.**

Practice appropriate personal hygiene: to reduce transmission of the virus, you are encouraged to wash your hands, use hand sanitizer and clean your desk with wipes, which will be available at classroom entrances and at “sanitizing stations”.

Positive test reporting: Students must self-report if they test positive for COVID-19 via this website: <https://coronavirus.utah.edu/> ([Links to an external site.](#))

In-person attendance: You are encouraged, but not required to attend in-person meetings within COVID-19 guidelines. Do not attend in-person meetings if you have been exposed to someone with COVID-19 or are experiencing symptoms.

Americans with Disabilities Act (ADA): The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services. **Accommodations should be obtained prior to the first day of class so that I may best meet your needs.**

University Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585- 2677(COPS).

Alternative Content Accommodations: There will be no alternative accommodations for content or assignments. This is a science course, and you are responsible for the scientific material covered in this class. The course material is based on current ideas and practices widely accepted and tested by the broader scientific community, and you are expected to utilize this content when engaging in this course, including during discussions, exams, and assignments.

This syllabus does not constitute a contract and is subject to change based on instructor discretion.

Wellness statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776, the University of Utah Counseling Center (801-581-6826), or the 24/7 Crisis line **801-587-3000**.

Other resources include:

<http://veteranscenter.utah.edu> (Links to an external site.)

<http://lgbt.utah.edu> (Links to an external site.)

<http://writingcenter.utah.edu> (Links to an external site.)

<http://counselingcenter.utah.edu> (Links to an external site.)

<http://disability.utah.edu> (Links to an external site.)

<http://womenscenter.utah.edu> (Links to an external site.)

24/7 Crisis line **801-587-3000**

General class schedule (except first week and exam weeks):

Group 1 will meet Tuesdays 6-7pm

Group 2 will meet Tuesdays 7-8pm

Group 3 will meet Thursdays 6-7pm

Group 4 will meet Thursdays 7-8pm

*Please note that during exam weeks, there will only be 1 in-class meeting day (either Tuesday or Thursday), and the other groups will use Zoom to complete in-class sessions concurrently.

Week	Date, groups	Lecture topics	Text Ch.	Assignments Due
1 – ONLINE	8/25 All groups: 6-8pm	-Introductions, syllabus, intro to human physiology -Membrane dynamics	1,2,5	-Questionnaire due 8/27 -Week 1 GQ due 8/29
	8/27 Groups 1&2: 6-7pm Groups 3&4: 7-8pm			
2 – Commence in-person	9/1, 1&2	-Communication, integration, homeostasis -Endocrine system	6,7	-Week 2 GQ due 9/5
	9/3, 3&4			
3	9/8, 1&2	-Neuron anatomy -Resting membrane potential	5,8	-Week 3 GQ due 9/12
	9/10, 3&4			
4 Discussion 1	9/15, 1&2	-Neuron function -Synaptic plasticity	8	-Annotations -Homework 1 due 9/15 -Week 4 GQ due 9/19
	9/17, 3&4			
5	9/22 – Exam I, via ProctorU, ALL GROUPS, 6-8pm			
	9/24, 3&4 (1&2 attend)	-Sensory systems I	10	-Week 5 GQ due 9/26

	remotely via Zoom)			
6 – ONLINE	9/29, 1&2	-Sensory systems II -Efferent Div. of NS	10, 11	-Week 6 GQ due 10/3
	10/1, 3&4			
7 – ONLINE Discussion 2	10/6, 1&2	-Muscle physiology	12	-Annotations -Homework 2 due 10/9 -Week 7 GQ due 10/10
	10/8, 3&4			
8	10/13, 1&2 (3&4 attend remotely via Zoom)	-Body movement	13	-Week 8 GQ due 10/14
	10/15 – Exam II, via ProctorU, ALL GROUPS, 6-8pm			
9	10/20, 1&2	-Cardiovascular physiology -Circulatory system	14, 15	-Week 9 GQ due 10/24
	10/22, 3&4			
10	10/27, 1&2	-Capillary dynamics, blood -Respiratory sys: ventilation	16, 17	-Week 10 GQ due 10/31
	10/29, 3&4			
11 Discussion 3	11/3, 1&2	-Respiratory sys: gas exchange, transport -Kidney physiology	18, 19	-Annotations -Homework 3 due 11/6 -Week 11 GQ due 11/7
	11/5, 3&4			
12	11/10, 1&2 (3&4 attend remotely via Zoom)	-Fluid & electrolyte balance	20	-Week 12 GQ due 11/11
	11/12 – Exam III, via ProctorU, ALL GROUPS, 6-8pm			
13	11/17, 1&2	-Digestive system -Metabolism	21, 22	-Week 13 GQ due 11/21
	11/19, 3&4			
14 – ONLINE Discussion 4	11/24 Groups 1&2: 6-7pm Groups 3&4: 7-8pm	-Immune system	24	-Annotations -Week 14 GQ due 11/28
15 – ONLINE	12/1, 1&2 12/3, 3&4	-Exercise -Reproductive system	25, 26	-Homework 4 due 12/4 -Week 15 GQ due 12/5
12/8 – Exam IV, via ProctorU, ALL GROUPS, 6-8pm (not cumulative)				

Note: This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas under Announcements.