

## BI 145A: TISSUE and ORGAN PHYSIOLOGY

**Submit problem sets:** to your TAs through Moodle

**Instructor:** C. Chace Tydell, DVM

**E-mail:** ctydell@cerritos.edu

**Class Hours:** 7 – 8:30 pm Mondays and Wednesdays in 151 Braun?

**Undergrad TAs:**

**Grading:** 40% Problem Sets. 10% Presentation. 25% Midterm. 25% Final.

Participation that enhances the learning environment may elevate course grade.

**Required Text:** HUMAN PHYSIOLOGY by Derrickson. 1<sup>st</sup> or 2<sup>nd</sup> edition

WEEK	DATE	TOPIC	READING
1	September 30	Intro/Homeostasis/Biomolecules HAND OUT PROBLEM SET 1	Chapters 1-6
2	October 5 October 7	Cell interactions with environment Tissues and organs	Chapters 1-6
3	October 12 October 14	Endocrine Endocrine HAND OUT PROBLEM SET 2 <i>PROBLEM SET 1 DUE 10/14</i>	Chapter 11 Chapter 11
4	October 19 October 21	Urinary Physiology Urinary Physiology	Chapter 17 Chapter 17
5	October 26 October 28	Urinary Physiology Urinary Physiology <i>PROBLEM SET 2 DUE 10/28</i>	Chapter 17 Chapter 17
6	November 2 November 4	MIDTERM Autonomic nervous system HAND OUT PROBLEM SET 3	Chapter 9
7	November 9 November 11	ANS Blood and Blood typing	Chapter 9 Chapter 13
8	November 16 November 18	Cardiovascular Physiology Cardiovascular Physiology HAND OUT PROBLEM SET 4 <i>PROBLEM SET 3 DUE 11/18</i>	Chapter 13 Chapter 13
9	November 23 November 25	Cardiovascular Physiology Cardiovascular Physiology	Chapter 13 Chapter 13
10	November 30 December 2	Presentations Presentations <i>PROBLEM SET 4 DUE 12/2</i>	
11	December 9 or 11	FINAL EXAM	

Last day to drop or opt for Pass/Fail is November , 2020

## **Bi 145A – Tissue and Organ Physiology**

### **Course Policies, 2020**

**Class:** Bi 145 (3-0-6) Tissue and Organ Physiology

**Prerequisites:** Bi 8, Bi 9, Bi 12 and Bi 110. Bi 110 may be taken concurrently. Bi 114 and Bi/CNS 150 may be useful but are not required. (Particularly for Juniors / Seniors)

**Course Overview:** Bi 145A is a lecture and discussion course on anatomy and physiology. The course aim is to connect the information from core Caltech biology classes (predominantly molecular and cellular) to the basic structure and function of the human body. Although it is intended to satisfy prerequisites for both medical school and medical scientist training programs, the course is not the canonical course offered at such institutions. Rather, the course will focus on key topics and principles of physiology.

The term will begin with reviews of cell biology, cell-cell interactions and histology. Then, topics will include, in a system-based fashion, endocrine, ANS, urinary and cardiovascular physiology.

Most issues can be handled by your TA. Their office hours are the convenient time to discuss questions related to homework wording, possible errors in a problem, or questions about the material itself. In the event that you identify a problem the day before a problem set is due, you may attempt to email one of us, but if there is an error in the problem set you will not be penalized even if it discovered late.

Your TA can address administrative concerns such as quality or timing of office hours, errors during “point totaling”, specific conflicts, and issues related to the course instructor (which you don’t feel like discussing with her). Although you are encouraged to route your concerns through the TA, you may also discuss concerns with Chace Tydell directly. Beyond that, the usual means of redress of concern (Dean’s office, etc.) are available.

The only issues that must be directly discussed with Chace Tydell are homework extensions. Extensions will only be granted by Chace Tydell, and only with approval **prior** to the due date of the homework.

**Office hours / Availability:** I don’t have a Caltech office conducive to comfortable office hours so I will arrange office hours by appointment. I can also make myself available before lecture and will always be available after class. TA office hours will be determined by your TAs. Office hours are optional attendance; there will be new material presented only at the interest of the attendees. Since office hours are often used to discuss homework, please review the problems prior to coming to maximize your time. It is not the TA’s responsibility to watch you read the questions, nor is it their responsibility to tell you if you are “Right” or “Wrong”.

**Course Objectives:** The objective of the course is to cover the topics listed in the schedule. By the end of the course, students will possess a basic understanding of the physiology of the systems covered. They will be able to use standard terminology to describe the major organs, including the *anatomy and histology* of those organs when it is relevant to understanding the physiology. Student will be able to summarize the function of the organ in organism homeostasis, and will be able to discuss some of the molecular and cellular mechanisms that produce that function. These goals will be evaluated through problem sets and exams, and grades will reflect successful achievement of these objectives.

**Course Philosophy:** I've put lots of effort into the lectures, to try to maximize their efficacy, but I encourage class participation in several ways. One of those is the presentation assignment. As a veterinarian (yes, dogs and cats) and former research scientist, my physiology perspective is both medical and medical research. I generally approach the class with everyone having a blank slate for A&P but you need to have a background in cell biology, and the more you participate the more you learn.

## Resources

**Required Text:** **HUMAN PHYSIOLOGY** by Derrickson 1<sup>st</sup> or 2<sup>nd</sup> edition. This book is the primary resource for the class.

**Class Web Site:** All the handouts, homework assignments and PowerPoint presentations will be available at appropriate times via the class web page: <https://courses.caltech.edu>

**Supplemental Resources:** There are a plethora of useful resources in anatomy and physiology but please recognize that there is no independent peer review process for web pages. Thus, the information may be out of date or incorrect. Points may be deducted if you cite Wikipedia. Wikipedia is not a real resource but it can point you to relevant primary research. Ultimately you need to dive into PubMed or Google Scholar.

## Student Responsibilities and Evaluation

**Attendance:** As the class format attempts to be more interactive and less didactic, attendance is viewed as a gauge of commitment to the class but there is no penalty for absence. If a student's class percentage is at the cut-off for a grade, class participation that has enhanced the learning environment for other students could raise that student's grade. Behavior that interferes with the learning environment may lower a student's grade.

**Homework:** There will be four problem sets. Due dates are listed on the course schedule. Late homework receives a grade of **zero** unless prior arrangements are made. It is the student's responsibility to contact Chace Tydell before they miss an assignment. Each set is worth 10% of the course grade. Homework assignments are to be submitted electronically to Moodle by 7 PM on the due date in Word Document or PDF format. *If you would like handwritten grading notes*, you must also submit a paper copy of the problem set but electronic versions are **required**.

Generally, we will grade over one to one and one half weeks, and return the problem sets within two weeks. Extensions (only for good reasons) will generally be for one week. If an extension needs to be for longer than one week, it will generally be in the setting of an ongoing or active issue. In this setting, you will need to make arrangements with me (and potentially a Dean) in order to arrange what your homework will be. This is to allow us to return graded problem sets to active students. Unfortunately, every year several sets are delayed by active extensions. If extensions become particularly problematic, a person granted an extension may be asked to complete *alternate homework* problems of similar difficulty.

**Collaboration and Resource Policy:** All assignments are open book, open notes, open internet, and open collaboration unless specified in the problem itself. Each student is responsible for writing or typing his/her own answer for each problem. ***No plagiarism from collaborator/ text / notes / or internet is allowed*** – this includes “cutting and pasting” with reference; write it in your own words particularly if you collaborate. Identical sounding answers between students are considered plagiarism. If a problem asks you to draw a structure; this must be done by hand (no cut-and-pasting of jpeg/gif from the internet – five points will be removed). We are not evaluating your artistic ability, but your understanding.

**Exams:** There will be an IN-CLASS midterm and an IN-CLASS final exam. These exams will combine multiple choice, short answer and essay questions. They will be closed-book and will require knowledge of some anatomy as well as physiology. We hold in-class closed-book exams to specifically to prepare pre-med students for their future.

**Grading:** Requests for re-grading any exam or problem set **must be made within 5 days** of receiving the grade for that work. **NO EXCEPTIONS WILL BE MADE.** Grades will generally be assigned by percentage of total course points. Between 90% and 100% is typically A+, A and A-. Between 80% and 90% B+, B and B-. In the event that this distribution is too severe, the percentage required for a grade may be decreased. In addition, final grades may be elevated by classroom participation that improves the learning environment for your peers.