For the life of the flesh is in the blood.

Leviticus 17:11 (KJV)

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Office Hours: M & F from 10h00–11h00 & 13h00–15h00; W from 10h30–12h00. If you need to speak with me and these times don't work please email for an appointment.

The course

Time: 11h50–12h50 MWF (lectures); Labs at 07h00–10h55 & 12h05–15h15 on Thursday.

Location: VPH 117 (lectures); VPH 215/219 (lab)

Textbook: VANDER'S HUMAN PHYSIOLOGY: THE MECHANISM OF BODY FUNCTION by EP Widmaier, H Raff & KT Strang (12th Edition, McGraw-Hill). (The 13th Edition would also suffice.) The text is available as an ebook at http://www.coursesmart.com/IR/5950738/0077294777?__hdv=6.8.

This is a four credit course that caters for allied-health professions (nursing, physical therapy, athletics etc. . .). Students should have completed the BIO121 course, Introduction to Anatomy, and be taking or have taken chemistry courses.

The purpose of this course is:

- to help students gain a practical understanding of every day human bodily functions by integrating human anatomy, cell biology and biochemistry.
- for students to explain the principles underlying physiological processes and explain them.
- for students to explain physiological functions.
- for students to identify and describe the physiological processes that maintain homeostasis.
- for students to explain physiological responses from (internal or external) environmental causes.

This course will draw heavily on anatomy and chemistry and students must be prepared to *think* anatomically and chemically. Students will be examined on the ability to relate structure to function, as well as biochemical principles to function, in addition to being able to memorize physiological functions and the homeostatic importance of these functions.

Learning & Studying Physiology

Physiology is not an easy subject. There is no way to make it easy. Its study is hard work. *It is expected that students will invest an average of at least one hour of study per day*.

Learning is an active process. The idea of the brain storing discrete pieces of memory in defined areas is not correct. The brain assembles memories by using different parts of the brain, especially the sensory and motor parts of the brain concerned with touch, sight, hearing, talking and taking action. The more parts of your brain you engage the better you will learn. Memories are also assembled on a foundation of existing memories—*prior learning*. In each class you must be prepared to participate in accessing the prior learning of the class and assembling new memories.

Class will take the format employed in Problem Based Learning[1] where students will be presented with a case study that needs to be explained physiologically. There will be four Cases. The first lecture period will be spent reading and unpacking the case and forging links between the case and what the students already know. A list of study questions will be supplied to the students and the students will break into smaller groups to answer the questions. Each student will get a turn to answer a question in class. This answer will be then be discussed and any missing information added by other class members and the Professor. At the end of each Case the links between the physiology and the case will be rediscussed.

The critical skill you will be taught in this course is how to use the textbook and other resources to answer questions you will have about human bodily function and, importantly, how to teach yourselves. I will be teaching you how to teach yourselves. The basis for this course will be the textbook. Where needed, additional information (not found in the textbook) will be provided via Blacbkboard or notes.

It is important to understand that studying involves taking the information out of the textbook and putting the information in your head. Simply transcribing the information is not enough to get the information in your head. You have to think about the information as you read it and recapitulate it by your own thinking. Discussing the work with fellow students and tutors is one way to do this. To this end mindmaps or pictorial representations of the information are invaluable (e.g. Figure 1 on the next page).

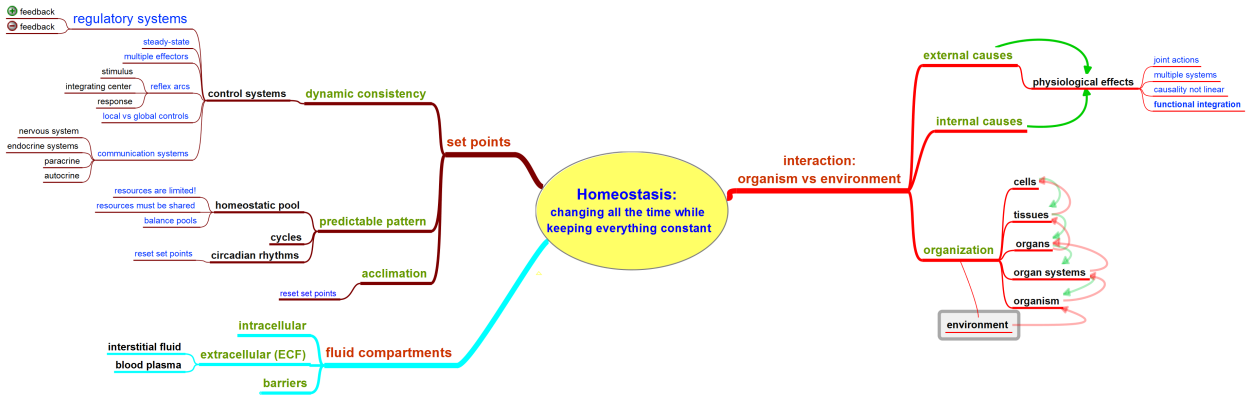

Figure 1: Example of a Mindmap based on Chapter 1: A Framework for Physiology. For more information on how to make mindmaps see https://en.wikipedia.org/wiki/Mind_map.

For audio-visual learners[2], take any topic in the textbook and search Youtube and you will find something to help you. If you find something really useful, please share it with the rest of the class.

[1] https://en.wikipedia.org/wiki/Problem-based_learning

[2] The theory of audio-, visual learners etc... has been disproved. You can learn to learn in any medium. See http://www.nature.com/news/the-science-myths-that-will-not-die, Myth 4.

Evaluation

Your efforts will be evaluated by five means:

Assessment	Description	% of grade
Midterm exams	4 mid term exams (100 pts each) that will occur during Lab time. The Exams will consist of a mini case that is similar to the first and students will have to answer questions on the new case.	40%
Lab quizzes	These will take place during Labs. These quizzes will pertain to the previous Lab's work and how it relates to the material covered in the lectures of the preceding week (FMW of previous week). The lowest three lab quiz grades will not be used to tabulate your final grade. If you miss the quiz for a valid reason (see the Student Handbook) you can retake the quiz.	20%
Final Exam	1 exam, comprehensive (150 pts). It will take place on Thursday May 9 from 08h00–10h00 in the regular class venue.	15%
Lab assignments	11 lab assignments of variable points. These will be turned in as group work. If you miss a lab you must have a valid reason and then the loss of the points will not be counted against you.	15%
Class participation	You will receive a grade for class participation. Your fellow students will award this grade based on how thoroughly you answer your assigned questions for each case.	10%
		100%

There are no extra credit assignments.

Last year's class average was a B. Letter grades will be awarded according to the following scheme:

A	$\geq 93\%$	B+	$\geq 87\%$	C+	$\geq 77\%$	D+	$\geq 67\%$
A−	$\geq 90\%$	B	$\geq 83\%$	C	$\geq 73\%$	D	$\geq 63\%$
		B−	$\geq 80\%$	C−	$\geq 70\%$	D−	$\geq 60\%$

Student Obligations

> *But I discipline my body and keep it under control, lest after preaching to others I myself should be disqualified.*
>
> 1 Corinthians 9:27 (ESV)

You, as the student, expect that I will be in class every day and on time; that I will be prepared for class and labs; that I will return graded work in a timely manner; and be available for consultation. It is expected that you will attend class where you will complete your assignments and contribute; and you will arrive at exams in a timely fashion. If you are involved in one or another extracurricular activity and you know in advance that you will not be in class for the exam **let me know before hand** so you can write the exam in a timely manner. In the case of an emergency (e.g. sickness, concussion etc...), your exam can be rescheduled.

Please see the **Student Handbook** (pages 12 and 13) with regards to Academic Integrity, Cheating and Plagiarism[3]. It is your responsibility to know the rules. It is expected that you will respect the privacy of other students (see page 12) and try to avoid seeing another student's grade. Due to the nature by which exams and quizzes are returned this is not always practical. (If you are very sensitive about your grades let me know in advance.) Also see Accommodations for Students with Disabilities (page 3 of the **Student Handbook**)

[3]Plagarism: to use the words or ideas of another person as if they were your own words or ideas. If you quote something from a website or book (by, for example, cutting-and-pasting), the correct thing to do is to cite the source.

and again, please let me know in advance if you need assistance in accommodating your learning needs (e.g. extra time, exams printed on a different color paper, a computer for written exams etc. . .).

Policy on electronic devices: Talking and texting in class is rude and disruptive[4]. Please refrain from such behavior. The use of tablets and notebook computers are permitted for study purposes. Using them to play games in class is distracting to others. The tapping of keys on a computer keyboard can be disruptive. Please take this into consideration. A soft-touch keyboard would be best for all should you decide to use a computer in class. If you want to use a computer or tablet in class, please sit along the periphery of the class so as not to be a temptation to others.

Course Outline

The table on the following page is a tentative outline of the course. It is subject to change as needed but should correlate with the exams indicated. There will be a Revision class the Wednesday before each exam. Email questions to the Prof in advance of this review session. Test dates will not be moved after the 18th of January (but exam content may be altered as needed). Please check other class syllabi to determine if there are any exam date conflicts. All exams will occur in the lecture venue.

The labs indicated in the table on the next page will cover the topics as indicated and occur on the dates indicated. This timetable might change as needed. There will be a quiz **at the start** of each lab session that will cover the work of the previous lab as well the previous week's class work. **Take note** that there will be an examination (midterm or lab quiz) every lab period except on the **14th of January**. All grades will be posted on Blackboard.

Course outline with exam dates.

Examination	Study Area	Textbook Sections	Lab Date	Lab Topic
Case 1 Exam 1 Thursday Feb 4 100 points	Homeostasis Membranes Movement of Molecules Protein Enzymes Control of Cells	Ch1.1–1.8 Ch3A2 Ch4.1–4.5 Ch3C.1–Ch3D.1 Ch5.1–5.2	Jan 14 Jan 21 Jan 28	Case 1 Osmoregulation Enzymes
Case 2 Exam 2 Thursday March 3 100 points	Neuronal signaling Sensory Physiology Muscle Metabolic Pathways Control of Movement	Ch6A–6D.2 Ch7 Ch9A–B.2 Ch3E Ch10	Feb 11 Feb 18 Feb 25	Nerve Conduction Sensory Physiology Muscle action
Case 3 Exam 3 Thursday April 14 100 points	Muscle Cardiovascular Physiology Autonomic Nervous System Respiratory System	Ch9B.3 Ch12 Ch6D.3&4 Ch13	March 17 March 31 April 7	Blood pressure ECG & Heart sounds Lung function
Case 4 Exam 4 Thursday May 5 100 points	Digestion & Absorption Endocrine Function Kidneys Regulation of Metabolism	Ch15.3 Ch11 Ch14.A.1–C.5 Ch16	April 21 April 28	Kidney function Glucose tolerance
Final Exam: Monday May 9 150 points				

[4]This is developing into a societal addiction-disorder of epidemic proportions. Put the effort into learning some self control to avoid becoming a slave to your possessions.