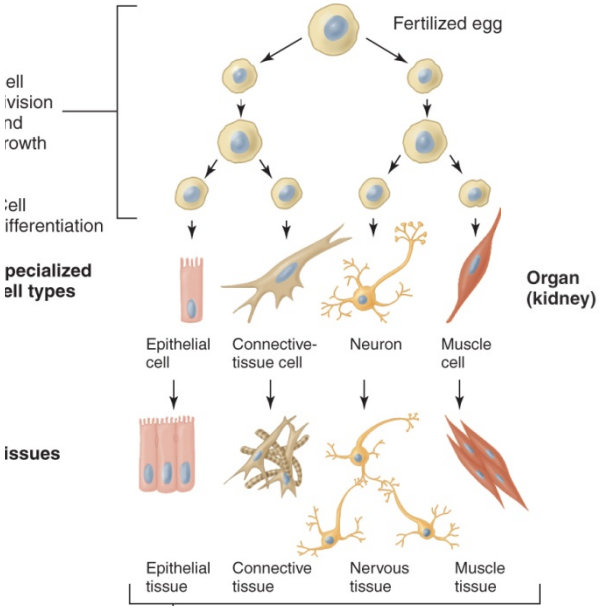
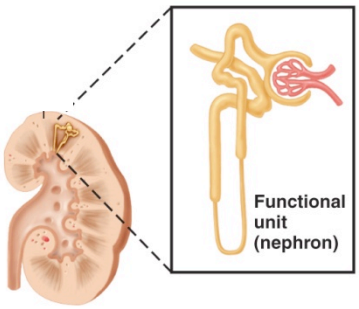
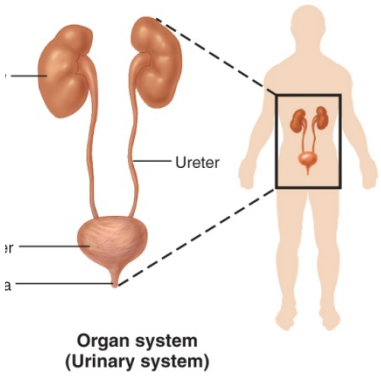
MCB 136 Advanced Physiology

Fall 2015 Syllabus







PROFESSORS

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TEXTBOOK: "Vander's Human Physiology" 13th Edition is a good reference. Your most useful resource will be the information uploaded by your instructors on the bCourses website. Please note that the emphasis in this course is on the material covered in lecture and in the lecture notes.

DISCUSSION SECTION: Sections start meeting during the second week of classes (Aug. 31st). Attendance is taken in discussion sections and counts towards your grade. To switch assigned

discussion sections, find someone to swap with you and obtain written permission from the GSI of the section you want to attend.

LECTURE NOTES

Lecture notes are available on bCourses in folders within the Files area.

ADVICE FROM INSTRUCTORS:

An important element in doing well in this class is keeping up to date. Reviewing the uploaded lecture notes before the next lecture and looking at the assigned reading the same day as the lecture has proven to make an enormous difference in the final result. Do not hesitate to ask the instructors questions. **Each lecture in turn uses the material in previous lectures.** It is easy to get left behind if you do not master the material previously presented. **Also there are regular small quizzes in class and these points count.**

Please ask questions in section and office hours. We will be happy to answer them. The best time to ask them is after reviewing your notes - hopefully you will be doing so sometime soon after each lecture. Email should only be used for administrative purposes, not for questions on course content.

COURSE MECHANICS:

Quizzes: In class, 10 min: 9/9, 9/18, 10/5, 10/21, 11/9, 11/23; There are no make-ups or re-grades for these quizzes. Calculators needed for all quizzes and exams. No cell phones.

Problem Sets: due in class: 9/21, 10/19, 11/30

Exams: Midterms in class: 9/28, 10/26, Final Exam: 12/14 11:30-2:30pm. Makeup Midterm tests will only be given at the discretion of the instructor and for extraordinary documented reasons that require advance notice before the original scheduled time of the test (with the exception of medical emergencies).

GRADING: Your grade will be based on a total of 300 points.
6 Quizzes* 5 pts =30 total
Midterm 1=50 pts; Midterm 2=50pts; Final=170 pts.
Problem sets & Discussion: Discussion assignments and participation will be assigned a grade. A satisfactory grade "S" must be obtained for each problem set and discussion meeting.

Re-grading: There is considerable care given to the design and grading of tests with close cooperation between the person who designed the question and the one person who grades it. Therefore there is no re-grading for any test. Mistakes in adding points can be corrected. However, note that test papers are routinely photocopied before they are handed back. The Final cannot be handed back as it is part of your record, but can be examined on request in the presence of a GSI during the first week of the next semester.

The student community at UC Berkeley has adopted the following Honor Code: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others." The hope and expectation is that you will adhere to this code.

Collaboration and Independence: Reviewing lecture and reading materials and studying for

exams can be enjoyable and enriching things to do with fellow students. This is recommended. However, unless otherwise instructed, homework assignments are to be completed independently and materials submitted as homework should be the result of one's own independent work.

Cheating: A good lifetime strategy is always to act in such a way that no one would ever imagine that you would consider cheating. In fairness to students who put in an honest effort, students that copy another's answers during an exam, use a smartphone, plagiarize, or use other forms of cheating, will automatically be assigned a zero for that entire test and the Office of Student Conduct will be notified. In order to guarantee that you are not suspected of cheating, please keep your eyes on your own materials and do not converse with others during the quizzes and exams.

Academic Integrity and Ethics: Cheating on exams and plagiarism are two common examples of dishonest, unethical behavior. Honesty and integrity are of great importance in all facets of life. They help to build a sense of self-confidence, and are key to building trust within relationships, whether personal or professional. There is no tolerance for dishonesty in the academic world for it undermines what we are dedicated to doing – furthering knowledge for the benefit of humanity.

Your experience as a student at UC Berkeley is hopefully fueled by passion for learning and replete with fulfilling activities. And we also appreciate that being a student can be stressful. There may be times when there is temptation to engage in some kind of cheating in order to improve a grade or otherwise advance your career. This could be as blatant as having someone else sit for you in an exam, or submitting a written assignment that has been copied from another source. And it could be as subtle as glancing at a fellow student's exam when you are unsure of an answer to a question and are looking for some confirmation. One might do any of these things and potentially not get caught. However, if you cheat, no matter how much you may have learned in this class, you have failed to learn perhaps the most important lesson of all.

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Date		Topic	Lecturer	Activities
26-Aug-Wed	1	Intro to Physiology	Bautista#1	
28-Aug-Fri	2	Diffusion, osmosis, and membrane transport	Bautista#2	
31-Aug-Mon	3	Ion channels and transporters: principles of operation	Bautista#3	
2-Sep-Wed	4	Membrane Potential	Bautista#4	
4-Sep-Fri	5	Nernst/GHK	Bautista#5	Quiz 1
7-Sep-Mon		**Labor Day**		
9-Sep-Wed	6	Graded/Action Potential	Bautista#6	
11-Sep-Fri	7	Synaptic transmission	Bautista#7	
14-Sep-Mon	8	Techniques to study Neurobiology	Bautista#8	
16-Sep-Wed	9	CNS/Diseases	Bautista#9	
18-Sep-Fri	10	PNS	Bautista#10	Quiz 2
21-Sep-Mon	11	Sensory 1	Bautista#11	PS1 Due
23-Sep-Wed	12	Sensory2	Bautista#12	
25-Sep-Fri	13	Channelopathies	Bautista #13	
28-Sep-Mon	14	**Midterm #1**	**Midterm #1**	
30-Sep-Wed	15	Somatic and autonomic nervous systems	Lishko#1	
2-Oct-Fri	16	Skeletal muscle (molecular basis of contraction)	Lishko#2	
5-Oct-Mon	17	Skeletal muscle (regulation and diseases)	Lishko#3	Quiz 3
7-Oct-Wed	18	Smooth muscle and cardiac muscle: differences and similarities	Lishko#4	
9-Oct-Fri	19	In a heartbeat. The heart: anatomy, physiology and regulation	Lishko#5	
12-Oct-Mon	20	Blood and blood vessels	Lishko#6	
14-Oct-Wed	21	Cardiovascular regulation part I	Lishko#7	
16-Oct-Fri	22	Cardiovascular regulation part II	Lishko#8	
19-Oct-Mon	23	Respiration anatomy, mechanics and ventilation	Lishko#9	PS2 Due
21-Oct-Wed	24	Gas exchange, transport and regulation of respiration	Lishko#10	Quiz 4
23-Oct-Fri	25	Reproduction: gametogenesis	Lishko#11	
26-Oct-Mon	26	**Midterm# 2**	**Midterm# 2**	
28-Oct-Wed	27	Reproduction: fertilization and development	Lishko#12	
30-Oct-Fri	28	Physiology of homeostasis	Hariharan#1	
2-Nov-Mon	29	GI: mouth to stomach	Hariharan#2	
4-Nov-Wed	30	GI: pancreas, liver and intestine	Hariharan#3	
6-Nov-Fri	31	GI: digestion and absorption	Hariharan#4	
9-Nov-Mon	32	Metabolism	Hariharan#5	Quiz 5
11-Nov-Wed		**Veterans Day**		
13-Nov-Fri	33	Appetite and fat storage	Hariharan#6	
16-Nov-Mon	34	Introduction to renal physiology	Hariharan#7	
18-Nov-Wed	35	Regulation of fluid and electrolytes by the kidney	Hariharan#8	
20-Nov-Fri	36	Systemic regulation of fluid balance	Hariharan#9	
23-Nov-Mon	37	Regulation of organismal pH	Hariharan#10	Quiz 6
25-Nov-Wed		**Special Presentation**		
27-Nov-Fri		**Thanksgiving break**		
30-Nov-Mon	38	Introduction to endocrinology	Hariharan#11	PS3 Due
2-Dec-Wed	39	Thermogenesis	Hariharan#12	
4-Dec-Fri	40	Diseases that affect homeostatic regulation	Hariharan#13	
7-Dec-Mon		RRR	Bautista Review	
9-Dec-Wed		RRR	Lishko Review	
11-Dec-Fri		RRR	Hariharan Review	
14-Dec-Mon		**Final EXAM**		