

MCB 32: Introduction to Human Physiology, Fall 2016

Lectures: T/Th 12:30-2 pm, 2050 VLSB

Instructor

Robin Ball, rball@berkeley.edu

Office hours: Tues 10-11am, Wed 11am-12:30pm in 134 LSA

Voluntary discussion section with Robin: Tues 4-5pm, 4051 VLSB

Graduate Student Instructors

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Course description

This course is intended as an introduction to human physiology for non-MCB majors. We will start off the course reviewing basic cell biology, which will be necessary for understanding how the human body works. We will then cover all the major organ systems of the human body, including endocrinology, reproductive system, nervous system, muscles, cardiovascular physiology, respiratory physiology, urinary system and the gastrointestinal system. By the end of the semester, you will have an understanding of how your organs function and how your body regulates the different organ systems to help maintain homeostasis and keep you alive.

Discussion sections

There are discussion sections once a week. Please attend the section you are enrolled in. Discussion sections will give you more opportunities to work through the material, form study groups and ask questions. Weekly quizzes will be administered in discussion sections.

Required material

iClickers: You will need an iClicker remote, which can be purchased at the bookstore, or the iClicker REEF app. You should bring your Clicker with you to every lecture. There is more information about Clickers on page 3 of the syllabus.

Recommended textbook

Textbook: Cindy L. Stanfield, *Principles of Human Physiology*, Pearson, 6th edition

A new version of this textbook is available at the UC Berkeley bookstore. You may also buy used copies elsewhere. You may use the 5th or 4th edition, but the lecture notes will refer to specific figures or pages from the 6th edition. The 5th edition is on reserve at Moffitt Library (not the Biosciences Library).

The schedule tells you which chapters of the book to review for each lecture, but you do not need to know extra material in the textbook that was not discussed in lecture. Use the textbook to clear up confusing points from lecture and to review the figures.

Course website

<https://bcourses.berkeley.edu/> or find it via CalCentral.

Lecture notes and slides will be posted in the Files section before class. Homework can be found in the Assignments section. You should check the course website for announcements or have them automatically emailed to you. It is up to you to check the course website regularly.

Grades

Quizzes (best 6 out of 9)	60 pts (10 pts x 6)
Two midterms (best 2 out of 3)	160 pts (80 pts x 2)
Final	150 pts
Research paper	20 pts
Homework	20 pts
Lecture participation	20 pts
Total	430 pts

Quizzes: Quizzes will be administered in discussion sections by the GSIs. There will be 9 brief quizzes, given in discussion beginning Sept 6 and ending Dec 2 (we will announce make-up quizzes for holidays). Each quiz counts 10 points and only the top 6 scores will be counted. There are no make-up quizzes.

Exams: Three midterms cover material immediately preceding these sections of the course. These exams are taken in class, 80 minutes duration. The exams will be a combination of multiple choice and short answer questions and are worth 80 points each. Your lowest score will be dropped, so if you miss an exam for whatever reason, it will not affect your grade. There will not be make-up exams, except for religious holidays or official academic/sports activities.

The final exam is worth 150 points and covers material from the entire course.

Homework: The homework assignments will be posted on bCourses in the Assignments section. There will be a homework assignment for most lectures. These will often involve watching an online video or animation and answering questions about them on bCourses (some animations require a Flash player and can only be viewed on a computer). You have two chances to get the correct answers and your highest score will be recorded in bCourses. The homework assignments are a good chance to practice and prepare for quizzes and exams. You will get no credit for late homework. Homework is always due at 12:30pm on Tuesdays or Thursdays (i.e. at the start of lecture).

Paper: You will write a two-page paper (double-spaced) about how a particular medication affects the body. You can choose any medication you are interested in, or choose from a list of common medications. You will research how the medication functions and affects human physiology in order to help the patient. The paper is your opportunity to apply all that you have learned to a real-world medical problem. The paper is due Dec 2 at 5pm through bCourses. We will give you more details about the assignment later in the semester.

Participation: You will earn 1 point for each class you participate in the Clicker questions. Participation entails answering more than 50% of the Clicker questions in the lecture (regardless of the answer). In addition, there will be a few other opportunities to earn participation points in lecture throughout the semester. The maximum points you can get for participation are 20 points, but there will be more than 20 opportunities to get these points (i.e. you can miss a few classes).

iClicker

We will be using the iClicker student response system in class this semester. iClicker helps me to understand what you know and gives everyone a chance to participate in class. We will keep track of iClicker usage in class, so this will count towards your participation grade.

You will need to purchase an iClicker remote from the bookstore. If you already have an iClicker from another class, this will work fine (original remote, iClicker+ or iClicker2 will all work).



Alternatively, you may use a smart phone or tablet as an iClicker remote. You can download the iClicker REEF app and register here: app.reef-education.com. Creating an account automatically starts a free 14-day trial subscription. Please use this trial period to make sure iClicker REEF will work for all of your iClicker classes before purchasing a subscription as it is not possible to receive a refund after you purchase a subscription.

Registering iClickers

In order for us to know you used your iClicker, you will need to register the remote in bCourses. Look for the iClicker menu on the left in our course site. Follow the directions for registering your remote.

If you are using REEF Polling, be sure that you've added your Student ID to your profile to complete the registration process. At the start of class, log in to the iClicker REEF app and look for our class name (MCB 32 Fall 2016) or professor name. This will register your iClicker so we can keep track of your responses.

Clickers in class

Bring your iClickers to class on Aug 30 and Sept 1 to check that they are functioning properly, and starting Sept 6 we will start keeping track of responses for participation credit. It is up to you to make sure your iClicker is working and has batteries. There are no make-up assignments for missing a day of Clicker questions. It's just one point and there are many opportunities to get participation points.

Accommodations

If you need disability-related accommodations in this class, if you have emergency medical information you wish to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class or email me.

Students who need academic accommodations (for example, a notetaker), should request them from the Disabled Students' Program, 260 César Chávez Center, 642-0518 (voice or TTY). DSP is the campus office responsible for verifying disability-related need for academic accommodations, assessing that need, and for planning accommodations in cooperation with students and instructors as needed and consistent with course requirements.

Honor code

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."

Cheating: A good lifetime strategy is always to act in such a way that no one would ever imagine that you would even consider cheating. Anyone caught cheating on a quiz or exam in this course will receive a failing grade in the course and will also be reported to the University Center for Student

Conduct. 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.

We consider bringing a fellow student's iClicker to class to be cheating and a violation of the University Honor Code. If you are caught with a remote other than your own or have votes in a class that you did not attend, you will forfeit all Clicker points and may face additional disciplinary action.

Plagiarism: To copy text or ideas from another source without appropriate reference is plagiarism and will result in a failing grade for your assignment and usually further disciplinary action. We will check your papers for plagiarism, so please be careful about this. For additional information on plagiarism and how to avoid it, see, for example:

<http://www.lib.berkeley.edu/instruct/guides/citations.html#Plagiarism>

<http://gsi.berkeley.edu/teachingguide/misconduct/prevent-plag.html>

LECTURE SCHEDULE (subject to change)

Date	Lec	Subject	Quiz/HW	Chapter
Week 0				
Th 8/25	1	Introduction to human physiology		1
Week 1			No quiz	
Tu 8/30	2	Homeostasis and negative feedback		1
Th 9/1	3	Chemistry review, biomolecules, energy, enzymes	HW 1 due	2, 3
Week 2			Quiz 1	
Tu 9/6	4	Cells, organelles and tissues	HW 2	1-3
Th 9/8	5	Membrane transport	HW 3	4
Week 3			Quiz 2	
Tu 9/13	6	Intercellular signaling	HW 4	5
Th 9/15	7	Endocrine regulation: Pituitary and cortisol	HW 5	6, 21
Week 4			No quiz	
Tu 9/20		EXAM 1 (Lec 1-7)		
Th 9/22	8	Reproductive system		22
Week 5			Quiz 3	
Tu 9/27	9	Nervous system: Membrane and action potentials	HW 6	4, 7
Th 9/29	10	Nervous system: AP conduction, synaptic transmission	HW 7	7, 8
Week 6			Quiz 4	
Tu 10/4	11	Central nervous system	HW 8	9
Th 10/6	12	Sensory physiology: Touch	HW 9	10
Week 7			Quiz 5	
Tu 10/11	13	Autonomic nervous system and somatic motor system	HW 10	11
Th 10/13	14	Skeletal muscle: Contraction and force generation	HW 11	12
Week 8			Quiz 6	
Tu 10/18	15	Skeletal muscle: Spinal reflexes and voluntary control	HW 12	9, 12
Th 10/20	16	CV: Heart and blood vessels	HW 13	13, 14
Week 9			No quiz	
Tu 10/25		EXAM 2 (Lec 8-15)		
Th 10/27	17	CV: Cardiac cycle		13

Week 10			Quiz 7	
Tu 11/1	18	CV: Regulation of blood pressure	HW 14	13, 14
Th 11/3	19	Respiration: Ventilation	HW 15	16
Week 11			Quiz 8	
Tu 11/8	20	Respiration: Gas exchange and transport	HW 16	17
Th 11/10	21	Renal: Kidney anatomy and function	HW 17	18
Week 12			No quiz	
Tu 11/15		EXAM 3 (Lec 16-21)		
Th 11/17	22	Renal: Osmoregulation and control of blood pressure		19
Week 13			No quiz	
Tu 11/22	23	Gastrointestinal system	HW 18	20
Th 11/24		THANKSGIVING HOLIDAY		
Week 14			Quiz 9	
Tu 11/29	24	Metabolism and pancreatic hormones	HW 19	21, 24
Th 12/1	25	Exercise physiology	HW 20	
F 12/2		PAPER DUE Friday Dec 2 5pm on bCourses		
Week 15			No quiz	
Tu 12/6		Final review Lec 1-15 (RRR WEEK)		
Th 12/8		Final review Lec 16-25 (RRR WEEK)		
Final				
F 12/16		FINAL EXAM		
8-11 AM		Final covers material from entire course (cumulative)		

How to succeed in MCB 32

1. Attend lecture and discussion section regularly.
2. Review lecture notes and slides within a day of class. Rewrite notes to make them clearer. Use the textbook to clear up confusing points.
3. Post and respond to questions on Piazza (available in bCourses).
4. Keep up with the material by doing the homework (try answering the questions without using your notes the first time).
5. Form study groups with friends or other students in your discussion section.
6. Meet regularly with your study group to discuss the concepts from class. Quiz each other and teach each other. The best way to learn new material is to teach it to someone else.
7. Attend the weekly UGSI study sessions. These are led by students who took the course last year. They will have a good idea of how to study for the course.
8. Make flash cards to review vocabulary and anatomy. Quiz yourself often.
9. When you are going about your day, think about what is happening in your body. If you are walking, think about what is happening in your motor neurons and skeletal muscles each time you contract your leg muscles. Talk yourself through the process to review the material.
10. Before the exams, actively study the lecture notes and slides again (just reading the notes is not going to help you). Redraw diagrams. Do the practice problems from the slides, Clicker questions, quizzes, and questions from discussion section.

Still have questions?

Check the Frequently Asked Questions section on bCourses. You can get to the FAQs from the link on the homepage.