MCELLBI 104 Genetics, Genomics and Cell Biology, Fall 2020

Monday, Wednesday, Friday 9-10 AM

Instructors

Michael Eisen, Ph.D. (mbeisen@berkeley.edu; office hours M,F 10-11 during teaching weeks)
Kristin Scott, Ph.D. (kscott@berkeley.edu; office hours F 2-3 PM during teaching weeks)
Roberto Zoncu, Ph.D. (rzoncu@berkeley.edu; office hours TBA)

Course focus

This course will introduce students to key concepts in genetic analysis, eukaryotic cell biology, and state-of-the-art approaches in genomic medicine. Lectures will highlight basic knowledge of cellular processes that form the basis for human diseases. Emphasis in this course will be on eukaryotic cell processes, including cellular organization, dynamics, and signaling.

Grading

Midterm 1 (September 25)	100 pts
Midterm 2 (October 21)	100 pts
Final exam (Dec 17, 7-10 pm)	200 pts
Homework/Quizes	100 pts
Total	**500 pts**

Final grades for the course are curved, no strict grade cutoffs are predetermined.

No form of cheating will be tolerated. **Anyone caught cheating on a quiz, exam, or regrade request in this course will receive a failing grade in the course and will also be reported to the University Center for Student Conduct.**

Please review UC Berkeley's cheating policy

http://bulletin.berkeley.edu/academic-policies/#studentconductappealstextLinks to an external site.

which we follow strictly.

Textbooks

Customized text from "Genetics: From Genes to Genomes, 5th edition" by Hartwell et al., available at Cal bookstore. NOTE THAT THIS IS NOT REQUIRED - IT IS FOR REFERENCE/STUDY PURPOSES ONLY.

"Essential Cell Biology" by Alberts et al, Chapters 15, 16, 17 and 18, available for $9 each from: http://store.vitalsource.com/show/978-0-2038-2820-5 (Links to an external site.)

The assigned textbook readings are to support the lecture material - the emphasis in this class is on the lecture material.

Lectures

You are expected to attend lectures if possible. We provide recorded lectures for your convenience but it is not an alternative to regular attendance at lectures.

Lecture Notes

Instructors will make slides for all of their lectures available, in most cases prior to class, on bcourses.

Sections

During remote teaching sections are optional, but they are for your benefit and we encourage you to attend. You should attend the section in which you are enrolled unless you have made arrangements with your GSI and the GSI of the alternative section.

Accommodations

We do everything in our power to accommodate the individual learning needs of students as organized with the campus DSP. Please inform your instructor of any accommodations needed, ideally during the first week of the course, so we can assure that your needs are met. If you have any additional needs or face issues with the class, please let us know as soon as possible.

Safe, Supportive, and Inclusive Environment

Whenever a faculty member, staff member, post-doc, or GSI is responsible for the supervision of a student, a personal relationship between them of a romantic or sexual nature, even if consensual, is against university policy. Any such relationship jeopardizes the integrity of the educational process.

Although faculty and staff can act as excellent resources for students, you should be aware that they are required to report any violations of this campus policy. If you wish to have a confidential discussion on matters related to this policy, you may contact the Confidential Care Advocates on campus for support related to counseling or sensitive issues.

Appointments can be made by calling (510) 642-1988.

The classroom, lab, and work place should be safe and inclusive environments for everyone. The Office for the Prevention of Harassment and Discrimination (OPHD) is responsible for ensuring the University provides an environment for faculty, staff and students that is free from discrimination and harassment on the basis of categories including race, color, national origin, age, sex, gender, gender identity, and sexual orientation. Questions or concerns? Call (510) 643-7985, email ask_ophd@berkeley.edu, or go to http://survivorsupport.berkeley.edu/.Links to an external site.

Lecture Schedule

Lecture	Day of Week	Date	Lecturer	Topic
1	W	8/26/2020	Eisen	Mutation
2	F	8/28/2020	Eisen	Fate of New Mutations
3	M	8/31/2020		Transmission Genetics
4	W	9/2/2020	Eisen	Recombination
5	F	9/4/2020	Eisen	Recombination
	M	9/7/2020	Eisen	HOLIDAY, no class
6	W	9/9/2020	Eisen	Sex Chromosomes and Mitochondria
7	F	9/11/2020	Eisen	Human Migration
8	M	9/14/2020	Eisen	Population Genetics
9	W	9/16/2020	Eisen	Population Genetics
10	F	9/18/2020	Eisen	Population Genetics
11	M	9/21/2020	Eisen	Human Evolution
12	W	9/23/2020	Eisen	Personal Genetics
	F	9/25/2020	Midterm 1	
13	M	9/28/2020	Scott	Genome Assembly
14	W	9/30/2020	Scott	Genome Annotation
15	F	10/2/2020	Scott	Genetic Screens
16	M	10/5/2020	Scott	RNAi
17	W	10/7/2020	Scott	Genome Editing

18	F	10/9/2020	Scott	Molecular Genotyping
19	M	10/12/2020	Scott	Population Genetics
20	W	10/14/2020	Scott	Quantitative Genetics
21	F	10/16/2020	Scott	Genome Wide Association Studies
22	M	10/19/2020	Scott	Review session
23	W	10/21/2020	Midterm 2	
24	F	10/23/2020	Zoncu	Cell compartmentalization and organization
25	M	10/26/2020	Zoncu	Signaling I
26	W	10/28/2020	Zoncu	Signaling II
27	F	10/30/2020	Zoncu	Cell cycle regulation I
28	M	11/2/2020	Zoncu	Cell cycle regulation II
29	W	11/4/2020	Zoncu	Intracellular Transport I
30	F	11/6/2020	Zoncu	Intracellular Transport II
31	M	11/9/2020	Zoncu	Cytoskeleton I
32	W	11/11/2020		HOLIDAY, no class
33	F	11/13/2020	Zoncu	Cytoskeleton II
34	M	11/16/2020	Zoncu	Cell Division (mitosis & cytokinesis)
	W	11/18/2020	Zoncu	Review of Cell Biology
35	F	11/20/2020	DM1 (Zoncu)	Cancer
36	M	11/23/2020	DM1 (Scott)	Cancer

37	W	11/25/2020		HOLIDAY, no class
	F	11/27/2020		HOLIDAY, no class
	M	11/30/2020	DM1 (Eisen)	Cancer
38	W	12/2/2020	DM2 (Eisen)	Infectious disease
39	F	12/4/2020	DM2 (Scott)	Infectious disease
40	M	12/7/2020	DM2 (Zoncu)	Infectious disease