Genetics, Genomics and Cell Biology, Fall 2019

Monday, Wednesday, Friday 9-10 AM, 105 Stanley Hall

Instructors

Michael Eisen, Ph.D. (mbeisen@berkeley.edu; office hours TBA)

Kristin Scott, Ph.D. (kscott@berkeley.edu; office hours F 2-3 PM: Koshland 174 during teaching weeks

Roberto Zoncu, Ph.D. (rzoncu@berkeley.edu; office hours TBA)

GSIs

Abidi Abrar sections X,X (aabidi@berkeley.edu; office hours Wed., 11:00 am – 12:00 pm, LSA 349)

Costa Bartolutti sections X, X (cbartolutti@berkeley.edu; office hours Tues., 9:00 – 10:00 am, LSA 349)

Kayla Dinshaw sections X, X (kayla_dinshaw@berkeley.edu office hours Wed., 4:00 – 5:00 pm, LSA 349)

Hyung Jun Kim sections X,X (hyungjun_kim@berkeley.edu; office hours Mon., 3:00 – 4:00 pm, LSA 349)

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 26)	100 pts
Midterm 2 (October 22)	100 pts
Final exam (Dec 19, 7-10 pm)	200 pts
Quizzes (3 total, 25 points each)	75 pts
Mini Quizzes (10 total, 2.5 points each)	25 pts
Total	**500 pts**

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

Exam policies and regrades

All exams are closed book and no notes or other reference materials can be used.

Regrade requests for all exams except the final can be made in writing by the dates specified in class. Missed exams will follow University policy. Conduct in the class will abide by the UC honor code http://asuc.org/honorcode/index.php**.**

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/#studentconductappealstext

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

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

https://bcourses.berkeley.edu

Log in to bcourses.berkeley.edu for class announcements and other resources, including slides from lectures. The course site is entitled "Genetics, Genomics and Cell Biology" (MCB104 Fall 2018).

Lectures

You are expected to attend lectures. We provide course capture 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. Complete lecture notes will be available online at https://notes.berkeley.edu for a small fee. Disclaimer: those notes are not proofread by the instructors.

Sections

You are expected to attend sections, and will be graded on section attendance via quizzes that occur every week. You must attend the section in which you are enrolled unless you have made arrangements with your TA and the TA of the alternative section you wish to attend.

Absences

We understand that interviews, extracurriculars and other circumstances may occasionally mean that you will miss lecture, section and occasionally exams. Please let the instructors and TAs know as far in advance as you can if you will miss anything, especially quizzes and exams so that we can make alternative arrangements for you.

Accommodations

We do anything 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.

Other notes

Please bring questions about course material to GSI or Instructor office hours, class, or sections. Given the large size of the course, emails about course material can usually not be answered.

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/.

Lecture Schedule

Lecture	Day of Week	Date	Lecturer	Topic
1	W	8/28/2019	Eisen	Mutation
2	F	8/30/2019	Eisen	Fate of New Mutations
3	M	9/2/2019		HOLIDAY, no class
4	W	9/4/2019	Eisen	Transmission Genetics
5	F	9/6/2019	Eisen	Recombination
	M	9/9/2019	Eisen	Recombination
6	W	9/11/2019	Eisen	Sex Chromosomes and Mitochondria
7	F	9/13/2019	Eisen	Human Migration
8	M	9/16/2019	Eisen	Population Genetics
9	W	9/18/2019	Eisen	Population Genetics
10	F	9/20/2019	Eisen	Population Genetics
11	M	9/23/2019	Eisen	Human Evolution
12	W	9/25/2019	Eisen	Personal Genetics
		9/26/2019	Midterm 1	
13	F	9/27/2019	Scott	Sequencing and assembling genomes I
14	M	9/30/2019	Scott	Sequencing and assembling genomes II
15	W	10/2/2019	Scott	Enhancers and gene regulation
16	F	10/4/2019	Scott	Genome dynamics
17	M	10/7/2019	Scott	Reverse genetics I
18	W	10/9/2019	Scott	Reverse genetics II
19	F	10/11/2019	Scott	Forward genetics
20	M	10/14/2019	Scott	Quantitative genetics
21	W	10/16/2019	Scott	Genome Wide Association Studies I
22	F	10/18/2019	Scott	Genome Wide Association Studies II
23	M	10/21/2019	Scott	Review session
		10/22/2019	Midterm 2	
24	W	10/23/2019	Zoncu	Cell compartmentalization and organization
25	F	10/25/2019	Zoncu	Signaling I
26	M	10/28/2019	Zoncu	Signaling II
27	W	10/30/2019	Zoncu	Cell cycle regulation I
28	F	11/1/2019	Zoncu	Cell cycle regulation II
29	M	11/4/2019	Zoncu	Intracellular Transport I
30	W	11/6/2019	Zoncu	Intracellular Transport II
31	F	11/8/2019	Zoncu	Cytoskeleton I
32	M	11/11/2019		HOLIDAY, no class

33	W	11/13/2019	Zoncu	Cytoskeleton II
34	F	11/15/2019	Zoncu	Cell Division (mitosis & cytokinesis)
	M	11/18/2019	Zoncu	Review of Cell Biology
35	W	11/20/2019	DM1 (Zoncu)	Cancer
36	F	11/22/2019	DM1 (Scott)	Cancer
37	M	11/25/2019	DM1 (Eisen)	Cancer
	W	11/27/2019		HOLIDAY, no class
	F	11/29/2019		HOLIDAY, no class
38	M	12/2/2019	DM2 (Eisen)	Infectious disease
39	W	12/4/2019	DM2 (Scott)	Infectious disease
40	F	12/6/2019	DM2 (Zoncu)	Infectious disease

FINAL DEC 19, 7-10 pm