Genetics, Genomics and Cell Biology, Fall 2017

Monday, Wednesday, Friday 9-10 AM, 245 Li Ka Shing

Instructors

Michael Eisen, Ph.D. (mbeisen@berkeley.edu; office hours TBA)
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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 (Thursday, Sept 22, 8-10 PM, 1 Pimentel)	100 points
Midterm 2 (Tuesday, Oct 18, 8-10 PM, 1 Pimentel)	100 points
Final exam (Thursday, Dec 15, 7-10 PM)	200 points
Quizzes (3 total, 25 points each)	75 points
Mini Quizzes (10 total, 2.5 points each)	25 points
Total	**500 points**

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. A subset of all exams will be photocopied prior to being handed back. Missed exams will follow University policy. Conduct in the class will abide by the UC honor code http://asuc.org/honorcode/index.php**.** Cheating will not be tolerated. UC Berkeley's cheating policy (http://bulletin.berkeley.edu/academic-policies/#studentconductappealstext) will be followed. 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.

Textbooks

Customized text from "Genetics: From Genes to Genomes, 5th edition" by Hartwell et al., available at Cal bookstore.
"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 Powerpoint files from lectures. The course site is entitled "Genetics, Genomics and Cell Biology" (MCB104 Fall 2016).

ASUC Lecture Notes Online

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.

DSP Students

Inform your instructor of any accommodations needed during the first week of the course.

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/.

Lectures	Topic (Lecturer)
1. W, Aug 23	Genome, genes, mutations (XD)
2. F, Aug 25	Mutations and phenotypes (XD)
3. M, Aug 28	Sequencing and assembling genomes I (CM)
4. W, Aug 30	Sequencing and assembling genomes II (CM)
5. F, Sep 1	Fate of a new mutation (XD)
M, Sep 4	**Holiday, no class**
6. W, Sep 6	Transmission genetics (XD)
7. F, Sep 8	Recombination I (XD)
8. M, Sep 11	Recombination II (XD)
9. W, Sep 13	Sex chromosomes (XD)
10. F, Sep 15	Human migrations (XD)
11. M, Sep 18	Transcription I (XD)
12. W, Sep 20	Review (XD)
Th, Sep 21	**Evening Midterm 1, 8-10 pm, 1 Pimentel**
13. F, Sep 22	Transcription II (XD)
14. M, Sep 25	Genetic screens (CM)
15. W, Sep 27	Enhancers and gene regulation (CM)
16. F, Sep 29	Genome dynamics (CM)
17. M, Oct 2	Molecular genotyping (CM)
18. W, Oct 4	Population genetics (CM)
19. F, Oct 6	Quantitative genetics (CM)
20. M, Oct 9	Genome Wide Association Studies I (CM)
21. W, Oct 11	Genome Wide Association Studies II (CM)
22. F, Oct 13	Genome Wide Association Studies III (CM)
23. M, Oct 16	Review (CM)
Tu, Oct 17	**Evening Midterm 2, 8-10 pm, 1 Pimentel**

24. W, Oct 18	Cell comparmentalization and organization (RZ)
25. F, Oct 20	Signaling I (RZ)
26. M, Oct 23	Signaling II (RZ)
27. W, Oct 25	Cell cycle regulation I (RZ)
28. F, Oct 27	Cell cycle regulation II (RZ)
29. M, Oct 30	Intracellular Transport I (RZ)
30. W, Nov 1	Intracellular Transport II (RZ)
31. F, Nov 3	Cytoskeleton I (RZ)
32. M, Nov 6	Cytoskeleton II (RZ)
33. W, Nov 8	Cell Division (mitosis & cytokinesis) (RZ)
F, Nov 10	**Holiday, no class**
34. M, Nov 13	Review (RZ)
35. W, Nov 15	Disease module 1: Genetics of cancer (XD)
36. F, Nov 17	Disease module 1: Genomics of cancer (CM)
37. M, Nov 20	Disease module 1: Cell Biology of cancer (RZ)
W-F Nov 22-24	**Holiday, no class**
38. M, Nov 27	Disease module 2: Genetics of infectious disease (XD)
39. W, Nov 29	Disease module 2: Genomics of infectious disease (CM)
40. F, Dec 1	Disease module 2: Cell Biology of infectious disease (RZ)
M-F, Dec 4-8	Reading, recitation and review week
Thurs, Dec 14	**Final exam, 7-10 PM**