Course Syllabus

Genetics, Genomics and Cell Biology, Spring 2018

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

Instructors

David Bilder, Ph.D. (bilder@berkeley.edu)

Xavier Darzacq, Ph.D. (darzacq@berkeley.edu)

Nicole King, Ph.D. (nking@berkeley.edu)

Office hours for each instructor: Monday, 10-11 AM, 547 LSA (Bilder) or 301 Barker (King, Darzacq)

GSIs

Ashley Albright (aralbright@berkeley.edu) Sections 101, 108 Office Hours Friday 2 PM, 80 Koshland

Emma Gierman (egierman@berkeley.edu) Sections 102, 103, Office Hours Tuesday 9am, GPB 105

Joe Robinson (jdrobinson@berkeley.edu) Sections 105, 107 Office Hours Wednesday 10am, GPB 105

Jorge Bardales Mendieta (jorgebardales@berkeley.edu) Sections 104, 106, Office Hours Wednesday 8am, 1st floor LKS

Nick Jourjine (jourjine@berkeley.edu) Sections 109, 110, Office Hours Thursday 4pm, 174 Koshland

GSI Office Hours locations to be announced.

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 (Tues, Feb 13, 7-9 PM)	100 points
Midterm 2 (Thurs, Mar 8, 7-9 PM)	100 points
Final exam (Monday, May 7, 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 must be made by the dates specified in class. All exams are scanned 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 (Links to an external site.)Links to an external site.**.** 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: https://www.vitalsource.com/textbooks?utf8=✓&sort=&term=9780815344544

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 Spring 2017).

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. If necessary, please email GSIs through bCourses.

Class discussions can be directed to the “Discussion” forum on the bCourses website. Students and GSIs can create new discussion subjects or continue conversations on relevant threads. Options including threaded replies and comment “likes” can also be used to augment the quality of discussions. Comments that contradict course or university policies will be removed by GSIs. Although participation in these discussions will not be graded, involvement in content-related conversations contribute to understanding and highlight questions shared by multiple students.

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)- Reading**

1. W, Jan 17 Cell organization and membranes (DB) - Essentials of Cell Biology (ECB) Chapters 1, 11

2. F, Jan 19 Actin (DB) – ECB 17

3. M, Jan 22 Microtubules (DB) – ECB 17

4. W, Jan 24 Cell division (DB) – ECB 18

5. F, Jan 26 Cell cycle (DB) – ECB 18

6. M, Jan 29 Transport 1 (DB) – ECB 15

7. W, Jan 31 Transport 2 (DB) – ECB 15

8. F, Feb 2 Signaling 1 (DB) – ECB 16

9. M, Feb 5 Signaling 2 (DB) – ECB 16

10. W, Feb 7 Adhesion and polarity (DB) – ECB 20

11. F, Feb 9 Review

12. M, Feb 12 Genome, genes, mutations (XD)

Tues, Feb 13 **Evening Midterm 1, 7-9 pm Dwinelle 145 & 155**

13. W, Feb 14 Mutations and phenotypes (XD)

14. F, Feb 16 Fate of a new mutation (XD)

M, Feb 19 **Holiday, no class**

15. W, Feb 21 Transmission genetics (XD)

16. F, Feb 23 Recombination 1 (XD)

17. M, Feb 26 Recombination 2 (XD)

18. W, Feb 28 Sex chromosomes (XD)

19. F, Mar 2 Transcription I (NK)

20. M, Mar 5 Enhancers and gene regulation (NK)

21. W, Mar 7 Review (XD)

Thurs, Mar 8 **Evening Midterm 2, 7-9 PM Dwinelle 145 & 155**

22. F, Mar 9 Transcription in action (XD)

23. M, Mar 12 Sequencing and assembling genomes I (NK)

24. W, Mar 14 Genome annotation (XD)

25. F, Mar 16 Genetic screens (NK)

26. M, Mar 19 Genome engineering I (NK)

27. W, Mar 21 Genome engineering II (NK)

28. F, Mar 23 Molecular genotyping (NK)

March 26-30 **Spring break, no class**

29. M, Apr 2 Population genetics (NK)

30. W, Apr 4 Quantitative genetics (NK)

31. F, Apr 6 Genome Wide Association Studies I (NK)

32. M, Apr 9 Genome Wide Association Studies II (Craig Miller)

33. W, Apr 11 Human migrations (XD)

34. F, Apr 13 Genetics of infectious disease (XD)

35. M, Apr 16 Genomics of infectious disease (XD)

36. W, Apr 18 Cell Biology of infectious disease (DB)

37. F, Apr 20 Cell Biology of cancer (DB)

38. M, Apr 23 Genetics of cancer (XD)

39. W, Apr 25 Genomics of cancer (NK)

40. F, Apr 27 Review (NK)

M-F, Apr 30-May 4 Reading, recitation and review week

M, May 7 Final Exam, 7-10 PM