**Genetics, Genomics and Cell Biology, Spring 2019**
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)
- Kristin Scott, Ph.D. (kscott@berkeley.edu)

Office hours for each instructor: Mondays, 10-11 AM, 547 LSA (Bilder) or Wednesdays 301 Barker (Darzacq); Fridays, noon-1pm, 174 Koshland (Scott, from 3/22-5/3)

**GSIs**

- Jared Bennett (jared_bennett@berkeley.edu) Sections 101, 106. Office Hours Friday 2 PM in Barker 235
- Nora Kostow (nora.kostow@berkeley.edu) Sections 102, 103, Office Hours Wednesday 11am LSA 349
- Victoria Blake (victoria.blake@berkeley.edu) Sections 105, 107 Office Hours Wednesday 10am in Barker 235, Monday 10-11 Barker 231 from 2/25-3/18
- Charles Ulrich (Charles_ulrichiii@berkeley.edu) Sections 104, 108, Office Hours Wednesday 8am in Koshland 174
- Emily Harrison (emilyharrison@berkeley.edu) Sections 109, 110, Office Hours Friday 11am in Berkeley Way West room 4422

**RRR week GSI office hours:**
Monday 5/6:
Emily 10am-12pm Berkeley Way West 4422
Jared 1-3pm Barker 235
Tuesday 5/7:
Jared 1-3pm Barker 235
Wed 5/8:
Charles 8-9 am 174 koshland
Nora 11am-12pm LSA349
Thurs 5/9:
Charles 2-4 PM in 174 koshland
Friday 5/10:
Emily 11am-12pm Berkeley Way West 4422
Nora 3-4pm LSA349

**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**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>Midterm 1</td>
<td>100 points</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>100 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>200 points (150 Wheller)</td>
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<tr>
<td>Quizzes</td>
<td>75 points</td>
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<tr>
<td>Mini Quizzes</td>
<td>25 points</td>
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<tr>
<td>Total</td>
<td>500 points</td>
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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.)]. 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
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 2019).

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

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**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Lecturer</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>W, Jan 23</td>
<td>Cell organization and membranes (DB)</td>
<td>DB</td>
<td>Essentials of Cell Biology (ECB) Chapters 1, 11</td>
</tr>
<tr>
<td>F, Jan 25</td>
<td>Actin (DB)</td>
<td>R. Zoncu</td>
<td>ECB 17</td>
</tr>
<tr>
<td>M, Jan 28</td>
<td>Microtubules (DB)</td>
<td>DB</td>
<td>ECB 17</td>
</tr>
<tr>
<td>W, Jan 30</td>
<td>Cell division (DB)</td>
<td>DB</td>
<td>ECB 18</td>
</tr>
<tr>
<td>F, Feb 1</td>
<td>Cell cycle (DB)</td>
<td>DB</td>
<td>ECB 18</td>
</tr>
<tr>
<td>M, Feb 4</td>
<td>Transport 1 (R. Zoncu for DB)</td>
<td>DB</td>
<td>ECB 15</td>
</tr>
<tr>
<td>W, Feb 6</td>
<td>Transport 2 (DB)</td>
<td>DB</td>
<td>ECB 15</td>
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<tr>
<td>F, Feb 8</td>
<td>Signaling 1 (DB)</td>
<td>DB</td>
<td>ECB 16</td>
</tr>
<tr>
<td>M, Feb 11</td>
<td>Signaling 2 (DB)</td>
<td>DB</td>
<td>ECB 16</td>
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<tr>
<td>W, Feb 13</td>
<td>Adhesion and polarity (DB)</td>
<td>DB</td>
<td>ECB 20</td>
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<tr>
<td>F, Feb 15</td>
<td>Review</td>
<td></td>
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<tr>
<td>M, Feb 18</td>
<td>Holiday, no class</td>
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<tr>
<td>Tues, Feb 19</td>
<td>Evening Midterm 1, 7-9 pm Dwinelle 155 &amp; Kroeger 160</td>
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<tr>
<td>W, Feb 20</td>
<td>Genome, genes, mutations (XD)</td>
<td>XD</td>
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<tr>
<td>F, Feb 22</td>
<td>Mutations and phenotypes (XD)</td>
<td>XD</td>
<td></td>
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<tr>
<td>M, Feb 25</td>
<td>Fate of a new mutation (XD)</td>
<td>XD</td>
<td></td>
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<tr>
<td>W, Feb 27</td>
<td>Transmission genetics (XD)</td>
<td>XD</td>
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<tr>
<td>F, Mar 1</td>
<td>Recombination 1 (XD)</td>
<td>XD</td>
<td></td>
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<tr>
<td>M, Mar 4</td>
<td>Recombination 2 (XD)</td>
<td>XD</td>
<td></td>
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<tr>
<td>W, Mar 6</td>
<td>Sex chromosomes (XD)</td>
<td>XD</td>
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19. F, Mar 8 Human migrations (XD)
20. M, Mar 11 Transcription (XD)
21. W, Mar 13 Enhancers and gene regulation (XD)
22. F, Mar 15 Review (XD)
23. M, Mar 18 Guest Lecture Mike Eisen on Race and Genetics

Mon, Mar 18  
Evening Midterm 2, 7-9 PM GPBB 100 & VLSB 2050

24. W, Mar 20 Sequencing and assembling genomes I (KS)
25. F, Mar 22 Genome annotation (KS)

Mar 25—29  
Spring break, no class

26. M, Apr 1 Genetic screens (KS)
27. W, Apr 3  
Genome engineering I (KS)
28. F, Apr 5 Genome engineering II (KS)
29. M, Apr 8 Molecular genotyping (KS)
30. W, Apr 10 Population genetics (KS)
31. F, Apr 12 Quantitative genetics (KS)
32. M, Apr 15 Genome Wide Association Studies I (KS)
33. W, Apr 17 Genome Wide Association Studies II (KS)
34. F, Apr 19 Genetics of infectious disease (XD)
35. M, Apr 22 Genomics of infectious disease (KS)
36. W, Apr 24 Cell Biology of infectious disease (DB)
37. F, Apr 26 Genetics of cancer (XD)
38. M, Apr 29 Genomics of cancer (KS)
39. W, May 1 Cell Biology of cancer (DB)
40. F, May 3 Review (KS)

May 6—10  
Reading, recitation and review week

M, May 13  
Final Exam, 7-10 PM (location 150 Wheeler)