

**Faculty:** All faculty are from the Department of Molecular Cell Biology. The faculty will hold office hours (while they are lecturing) as follows:

**BY APPOINTMENT**

Jennifer Doudna	M 12-1, F 2:30-3:30 in 2084 VLSB*	3-0225, 708A Stanley, <a href="mailto:doudna@berkeley.edu">mailto:doudna@berkeley.edu</a> , <a href="https://mcb.berkeley.edu/faculty/BMB/doudnaj.html">https://mcb.berkeley.edu/faculty/BMB/doudnaj.html</a>
Andrew Dillin	M/ W 9-10, Th 2-3 PM	4-4951, 403E Li Ka Shing, <a href="mailto:dillin@berkeley.edu">mailto:dillin@berkeley.edu</a> , <a href="https://mcb.berkeley.edu/labs/dillin/content/welcome-dillin-lab">https://mcb.berkeley.edu/labs/dillin/content/welcome-dillin-lab</a>
Marla Feller	M/ W 9-10, Th 2-3 PM	3-1726, 195A LSA, <a href="mailto:mfeller@berkeley.edu">mailto:mfeller@berkeley.edu</a> <a href="http://mcb.berkeley.edu/labs/feller/">http://mcb.berkeley.edu/labs/feller/</a>

\* Office hours and location may be revised. M/W 9-10 in 3019 Etcheverry, Th 2-3 is 203 Wheeler.

**Course Coordinator:** Mike Meighan. 2-4110, 2088 VLSB, mailbox in 2084 VLSB (and another one in the hall outside 2088 VLSB), e-mail is {<mailto:mmeighan@berkeley.edu>}. Scheduled Office hours are M 11-12, W 11:30-12:30 and by appointment. Meighan is available for advice on study habits, techniques, course content, and on matters of scheduling, laboratory operations, exams, etc.. The coordinator will address any administrative or grading issues.

**Graduate Student Instructors:** The GSI's will instruct discussion. GSI office hours are held in the GSI office, 2084 VLSB GSI. Hours will be posted on bCourses.

**LOG ON to the Learning Catalytics url (for most students via Mastering Biology) and enter the session number at the START of lecture. The session number will be written on the chalkboard.**

**TIME TABLE**

**The drop deadline is January 29<sup>th</sup>.** The deadline to change grading option is February 19<sup>th</sup>.

1. Lectures begin January 20<sup>th</sup> and ends on April 29<sup>th</sup>. Lectures are held in 1 Pimentel from 8-9 AM. Simulcast will be held in 10 and 60 Evans. Resources such as the syllabus, handouts, etc. will be posted on bCourses. Some handouts are available only online, others are only available for purchase at Copy Central. No note taking service is authorized. The course is available via CourseCapture. Neither the quality, nor their availability is guaranteed.
2. **Email address:** We will routinely email the students about once a week. We will use your berkeley.edu email address you have listed in bCourses. You need to make sure you are receiving messages sent to that address. If you have not received any emails yet, there is a problem with your listed email address. bCourses will be used frequently, check it!
3. **ADDING:** To add Bio 1A, you must be enrolled in Bio 1AL or be exempt from simultaneous enrollment. See our website for more information: <http://mcb.berkeley.edu/courses/bio1a/> and click under enrollment information. Enroll or add to the waitlists through TeleBears. You will be contacted if we were able to add you to 1A/1AL.

4. **SWITCHING DISCUSSION (*Permanent Switch*):** On bCourses web site click “Click Here to Switch Lab Sections” for instructions how you may be able to switch your discussion section. **Deadline** for switching sections via TeleBears is Sunday, Jan. 24 midnight.
5. **DISCUSSION begins Monday, January 25<sup>th</sup>.** **You must show up to your assigned discussion or you will be dropped.**
6. **LABORATORY.** Lecture begins Monday **January 25<sup>th</sup>** and labs begin Tuesday **January 26<sup>th</sup>**. The first lab will cover Safety and Equipment. The lab exercise will be available for download on bCourses and in the lab manual. Lab will be held Tuesday through Friday.
7. **Attendance:** You are required to attend the lab AND discussion sections in which you are enrolled (not waitlisted). You may request to reschedule a particular lab, but only in the case of unavoidable direct conflicts. For further information, see the lab syllabus.
8. **Lecture examinations are scheduled for February 22<sup>nd</sup> and April 4<sup>th</sup> at 8 AM.** There are no make-up exams and NO early exams (except DSP). A handout will be given for each exam.
9. **Final Examination: May 9<sup>th</sup> at 8 – 11 AM.** Room(s) to be arranged. The final exam will be comprehensive and will cover all lectures. You will receive a handout in lecture regarding specific details about the final (point distribution, weighting, etc.). The exam will **START** at 8 AM. **You must be seated by 7:50 AM.** *WARNING: Late students will not be allowed to start the exam until 8:20 AM. The exam still ends exactly at 11 AM, independent of when the exam starts.*
10. In the case of disruption of an exam (fire alarm, bomb threat, etc.) alternative arrangements have been made. These may include moving the exam to another location, and/or extending the time, and/or arranging an alternative exam date or format (possibly essay).
11. Lab exams are scheduled as follows: **Lab Exam 1: Thursday night March 3<sup>rd</sup> 9:00-10:00 PM, Lab Exam 2: Thursday March 31<sup>st</sup>, 8:00-10:00 PM and Lab Exam 3: Thursday night April 28, 8:00-10 PM.** Room(s) to be arranged. These are start times—arrive 10 minutes early. Room(s) to be arranged. There are no make-up lab exams. A handout will be available on-line concerning each exam – room assignments, material covered, etc. There is NO additional final exam for the lab class.
12. Assignments, exams: When papers, etc. are returned it is your responsibility to pick them up. If you do not attend discussion, then you must contact your GSI and get the papers from them, at their convenience. Papers not picked up after 3 weeks may be discarded.

### **LECTURE MATERIALS:**

**Required textbook: Campbell Biology, 10<sup>th</sup> edition.** The textbook store has a substantial discount on the book. You will NOT need Mastering Biology. We will use Learning Catalytics for “iClicker style” questions during lecture. If the WiFi capacity isn’t sufficient then we will use iClicker transmitters.

**Required “Learning Catalytics” for Lecture WiFi voting:** The Biology 1A lecture will have graded questions during **EACH** lab lecture. “Learning Catalytics” is the software we will use to allow students to vote using WiFi enabled devices (phone, tablet, watch, etc). Learning Catalytics is packaged **FREE** with the textbook but you register for it from within your registration of Mastering Biology. It is available for purchase separately for \$12 for 6 month access (<https://learningcatalytics.com/pages/pricing>). **NOTE THERE IS A REQUIRED ASSIGNMENT BEFORE THE FIRST CLASS.** In this assignment you will register your SID. In the first assignment you will register your SID. The session number for the first assignment is 73394485. If for some reason WiFi capacity isn’t sufficient then we will revert to iClicker transmitters.

**Required Course Reader(s):** The required course reader for the first part of the course will be posted on bCourses and available at Replica Copy, 2140 Oxford. There most likely will not be any reader for the second part. There will be a reader for the third part of the course that will be posted on bCourses and available at Replica Copy

**Exam Reader:** An exam reader with exams from past semesters is available at Replica Copy.

**GRADING PROCEDURE:** Grades will be determined numerically as follows:

Learning Catalytics (lecture questions) Points (3 X 12)	36 pt's.
Midterm Examinations (2 x 100)	200 pt's.
Final (67 for Dr. Doudna, 67 for Dr. Dillin, 166 for Dr. Feller)	300 pt's.
Total:	536 pt's.

**Changes affecting the point distribution, the reading schedule, or other aspects of the syllabus may occur during the semester. We will inform you of any changes.**

Letter grades are based upon the points that you **EARN** (not based upon needs or wants). They are guaranteed as follows.

A (some form of an A)	100-90%	D (some form of a D)	69-60%
B (some form of a B)	89-80%	F	59-00%
C (some form of a C)	79-70%		

However, in the event that some examinations have been unusually difficult, the cut offs for letter grades may be lowered (but only by a few percentage points, and as deemed necessary). Historically around 40-50% of the class **EARN** A's and B's.

**I GRADES:** In keeping with University regulations, the grade of "incomplete" is assigned to a student only if (1) the student has completed at least one-half of the material with a passing grade of C or better and (2) the student presents documented medical evidence of inability to complete the course on schedule. The student assigned an I grade in Biology 1A must complete the work before the first day of classes in the Spring Semester of 2017, without including the course for units on the study list, or the I lapses to an F.

**CHEATING:** The rare student found cheating in the course will be reported to the University for review for dismissal. An automatic 0 will be given on that assignment. Cheating is not tolerated. This includes ALL work—including pre-labs!

**RECOMMENDATIONS:** It is probably better for you to obtain letters from upper division classes, in the future, but we are willing to write letters. Your GSI will write an initial draft of the letter (they know you the best). The course coordinator will edit the letter and a faculty member will sign the edited letter. The course coordinator will then forward your letter to the Placement center. This takes time--at least two weeks

## **HOW TO DO WELL**

1. Come to lectures and take notes. Make sure you review them.
2. Keep up with the material. It is essential that you do not fall behind. Seek help if needed.
3. Clarify topics you do not understand by
  - a. Coming to faculty office hours and ask questions.
  - b. Coming to GSI office hours and ask questions.
  - c. Getting into a study group.
  - d. Reading the book.
  - e. Using email to ask the faculty questions.

4. Use the exam reader, making sure you understand the reasoning behind the answers.
5. Come to the exam review sessions and ask questions.
6. Come to discussion with questions.

### **BIOLOGY 1A STUDY RESOURCES**

The following is a partial list. Please take advantage of these resources. Additional opportunities such as faculty & graduate student reviews may also occur during the semester. Further information is available in the lab manual and in the exam reader.

**Faculty Office Hr's:** Office hours are typically held in 2084 VLSB. Faculty will announce office hours and any changes to them.

**Academic Coordinator Office Hr's (2088 VLSB):** Refer to bCourses for up to date hours.

**Graduate Student Instructors Office Hr's (2084 VLSB):** Refer to bCourses for up to date hours.

**Student Learning Center (SLC, 189 Chavez Student Center):** The SLC offers student-led study groups and tutoring. Study groups require registration which can be done on SLC's webpage ([slc.berkeley.edu](http://slc.berkeley.edu)). Tutoring is generally available MTWTh 9-4 and F 9-12. See the SLC's webpage for more information. **Note:** None of the SLC's services are a substitute for lecture, discussion, reading the text, or attending Bio 1A office hours. However, they are an excellent way to get additional assistance and feedback from trained undergraduate tutors who want to assist you in meeting your academic goals.

**STUDY GROUPS:** These are a great way to learn the material. I encourage you to form study groups, either within your lab or with other students.

**Tutor Services (fee):** Formal tutoring (variable fees) from individuals may be available as the semester progresses. Contact Mike.

**Biology 1A Web Sites:** mostly bCourses and <http://mcb.berkeley.edu/courses/bio1a>.

### **Schedule of Classes**

Section	Disc. Time	Disc. Room		Section	Disc. Time	Disc. Room
101	M 11-12 PM	2062 VLSB		116	M 3- 4 PM	2030 VLSB
102	M 11-12 PM	2038 VLSB		117	M 4- 5 PM	2032 VLSB
103	M 11-12 PM	107 GPB		118	M 4- 5 PM	2030 VLSB
104	M 11-12 PM	151 Barrows		201	T 8 9 AM	2066 VLSB
105	M 12- 1 PM	2011 VLSB		202	T 8 9 AM	229 Dwinelle
106	M 12- 1 PM	2032 VLSB		203	T 11-12 PM	3059 VLSB
107	M 12- 1 PM	2030 VLSB		204	T 1- 2 PM	259 Dwinelle
108	M 1- 2 PM	2011 VLSB		205	T 1- 2 PM	247 Dwinelle
109	M 1- 2 PM	2032 VLSB		206	T 1- 2 PM	2070 VLSB
110	M 1- 2 PM	2030 VLSB		207	T 2- 3 PM	255 Dwinelle
111	M 2- 3 PM	2032 VLSB		208	T 2- 3 PM	254 Dwinelle
112	M 2- 3 PM	2011 VLSB		209	T 2- 3 PM	83 Dwinelle
113	M 2- 3 PM	2030 VLSB		210	T 3- 4 PM	3059 VLSB
114	M 3- 4 PM	2032 VLSB		211	T 4- 5 PM	2070 VLSB
115	M 3- 4 PM	2038 VLSB		212	T 4- 5 PM	2066 VLSB

## Biology 1A Calendar, Spring 2016

Lectures 1-13, Professor Doudna (1 & 2 given by Dr. Ross Wilson), Lectures 14-26: Professor Dillin (25 given by Dr. Dirk Hockemeyer, 26 given by Dr. Fyodor Urnov), Lectures 27-38: Professor Feller. All readings are from the 10<sup>th</sup> edition of Campbell Biology by Reece et al.

<b>Date</b>	<b>Lect #</b>	<b>Lecture Topic</b>	<b>Reading</b>	<b>Bio 1AL Lab, Discussion</b>
Jan 20	1 (RW)	Course introduction. Introduction to macromolecules. Protein structure & function	Ch. 1, 2	No lab.
Jan 22	2 (RW)	Structure and function: lipids, carbohydrates and nucleic acids	Ch. 3	
Jan 25	3	Cell structure and organization -#1	Ch. 4	Safety and Equipment.
Jan 27	4	Cell structure and organization -#2	Ch. 4	
Jan 29	5	The structure of biological membranes	Ch. 5	
		<b>*Deadline to drop = January 29th.</b>		
Feb 1	6	Cellular metabolism and biological catalysts	Ch. 6	Cells.
Feb 3	7	Enzyme function	Ch. 6	
Feb 5	8	Regulation of enzymatic activity	Ch. 6	
		<b>*Deadline to add without a fee = Feb. 5.</b>		
Feb 8	9	Introduction to bioenergetics	Ch. 6, 7	Enzymes, <i>Vibrio</i> isolation.
Feb 10	10	Cellular energy production – aerobic processes	Ch. 7	
Feb 12	11	Cellular energy production – anaerobic processes	Ch. 7	
Feb 15		<b>HOLIDAY</b>		No lab lecture. No lab.
Feb 17	12	Photosynthesis-the light reactions	Ch. 8	
Feb 19*	13	Photosynthesis-CO <sub>2</sub> fixation and related processes	Ch. 8	
		<b>*Feb. 19 Deadline to add, change from P/NP to let grade.</b>		
Feb 22		<b>MIDTERM 1 Date: Lectures 1-13. Rooms to be arranged.</b>	See handout.	Photosynthesis, <i>Vibrio</i> isolation.
Feb 24	14	Microbial Genetics and Evolution- Chromosomes, Plasmids, and Phage	Ch 19, Ch 27.1, 27.2	
Feb. 26	15	DNA Replication and the PCR.	Ch. 16, pps. 414-416	
Feb 29	16	Cell Cycle, Mitosis and Reproduction of Cells	Ch. 12	Complementation I, PCR and GMB I.
March 2	17	Chromosomes, Checkpoints and Cancer	Ch. 15, 18.5	<b>(Th March 3) Lab exam 1 at 9:00-10:00 PM.</b>
March 4	18	Meiosis and Sexual Life Cycle	Ch. 13	
March 7	19	Gregor Mendel and the Foundation of Genetics	Ch. 14	Complementation II, PCR analy And GMB II.
March 9	20	Recombination, Linkage and Mapping	Ch. 15	
March 11	21	Transcription	Ch. 17.1-3,	
March 14	22	The Genetic Code and Translation	Ch. 17.4-5	Complementation III and Bioinformatics.
March 16	23	Prokaryotic Gene Regulation	Ch 18.1-2	
March 18	24	Eukaryotic Gene Expression and Regulation	Ch 18.3 – 18.4	

March 21		SPRING BREAK!		
<b>Date</b>	<b>Lect #</b>	<b>Lecture Topic</b>	<b>Reading</b>	<b>Bio 1AL Lab, Discussion</b>
March 28	25	Organismal Cloning and Stem Cells (Guest Lecturer Dirk Hockemeyer)	Ch 20.3	<b>Lab exam 2 Review</b>
March 30	26	Genome Editing (Guest Lecturer Fyodor Urnov)	Ch 20.1-2, 20.4	<b>(Th March 31) Lab exam 2 at 8:00-10:00 PM.</b>
April 1*	27	Cell signaling	Ch. 11	
		<b>* April 1 grading deadline (P/NP). See an adviser</b>		
April 4		<b>MIDTERM 2: Lectures 13-26. Rooms to be arranged.</b>	See handout.	Rat Anatomy.
April 6	28	Development 1	Ch. 20.3	
April 8	29	Development 2	Ch. 21.6, 47.1-3	
April 11	30	Animal form and function	Ch. 40.1-3	Sensory input and genetic variation.
April 13	31	Animal nutrition	Ch. 41.1, 41.2 first subsection, 41.3, 41.5	
April 15	32	Circulation and respiration	Ch. 42.1-3, 42.5, 42.6 subsection, 42.7.	
April 18	33	Osmoregulation and excretion	Ch. 44.1- mid page 944.2, 44.3 978, 980-44.5.	Reproduction and development.
April 20	34	Hormones and the endocrine system	Ch. 45.1, pp. 1002-3, 1005, 1006-08	
April 22	35	The immune system	pp. 946-950, 952-954 962	
April 25	36	The Neurons, synapse, signaling	Ch. 48.1-2, pp. 1066	<b>Lab exam 3 review.</b>
April 27	37	The nervous system	Ch. 49.1, 50.5	<b>Thursday April 28 Lab Exam 3 : 8:00 – 10 PM</b>
April 29	38	Sensory and motor mechanisms	Ch. 50.1, 50.3	
		<b>RRR week</b>		
May 9		<b>FINAL EXAM 8-11 AM.</b>	See handout.	

**Look at the final exam handout carefully for your assigned seating within a section. It is critical that you take your place quickly since there is only 30 minutes between exams and there will be assigned seating. YOU MUST BE SEATED BY 7:50 AM. We will begin at 8 AM, not 8:10 AM. We must end at 11 AM.**