BIOLOGY 1A: COURSE SYLLABUS **Spring 2020**

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

Jennifer Doudna	Office hours** See bCourses.	3-0225, IGIB, Rm 512Gy, doudna@berkeley.edu, http://rna.berkeley.edu
Ross Wilson *guest lecturer*	Office hours** See bCourses.	Energy Biosciences Building rosswilson@berkeley.edu
Robert Fischer	**MWF 9-10, Th 2-3** **2084 VLSB**	2-1314, 231A Koshland, rfischer@ berkeley.edu. http://fischerlab.berkeley.edu/
Marla Feller	Location: **2084 VLSB** **M/W 9–10, Th 2–3 PM**	3-1726, 195A LSA, mfeller@berkeley.edu https://fellerlab.squarespace.com/

* Office hours during Part 1 will be variable. See bCourses for the most up to date listing.

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. You can also select to join any open sessions.

TIME TABLE

Drop deadline is January 31. Deadline to change grading option for students in College of Engineering and Chemistry is February 21. The deadline for other students to change their grading option is April 3.

1. **Lectures:** Begin January 22 and ends on May 1. 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 CalCentral. Neither the quality, nor their availability of course capture 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. **The course will use bCourses Accouncements for course related announcements. You are responsible for checking announcements on bCourses.**
4. **ADDING: Use CalCentral**. For more information click under enrollment information on our url: http://mcb.berkeley.edu/courses/bio1a/enroll/.
5. **SWITCHING DISCUSSION/LAB** (Permanent Switch): In CalCentral go to "My Academics". Follow the detailed instructions provided on the FAQ file posted on bCourses.
6. **DISCUSSION begins Monday, January 27th. You must show up to your assigned discussion or you will be dropped. There are NO discussions on Tuesday 1/21.**

7. **LABORATORY.** Lecture begins Monday **January 27** and labs begin Tuesday **January 28.** 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.
8. **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.
9. **Lecture examinations are scheduled for Monday February 24 and Monday April 6 at 8 AM.** There are no make-up exams and NO early exams (except DSP). A handout will be given for each exam.
10. **Final Examination: May 11 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.*
11. 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).
12. Lab exams: **Lab Exam 1: Thursday night March 5, 9:00-10:00 PM, Lab Exam 2: Thursday April 2, 8:00-10:00 PM and Lab Exam 3: Wed. April 29th from 8-10 PM.** Room(s) to be arranged. These are start times—arrive 10 minutes early. Room(s) to be arranged. There are no make-up exams. A handout will be available on-line concerning each exam – room assignments, material covered, etc. There is NO additional final exam for1AL.
13. 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:

Textbook: **Campbell Biology, 11th edition ONLY including Mastering Biology.** You will need the 11th edition and the electronic resources for the graded assignments. The 10th edition will not work for Mastering Biology.

Learning Catalytics (LC) – Each question is worth ½ pt for participation and an additional ½ pt for the correct answer. You can earn up to a MAXIMUM of 12 points per lecturer. There will typically be at least 16 points possible for each part. You will also need the Learning Catalytics account for Bio 1AL (6 pts per lecture). You must submit your SID once you set up a LC account for BOTH Bio 1A and Bio 1AL. **The session ID to enter your UCB SID for Bio 1A is 26751386. The session ID to enter your UCB SID for Bio 1AL (Lab) is 99440234**

Course Reader(s): The course reader for the first part of the course will be posted on bCourses and available at Replica Copy, 2140 Oxford. There will be a reader for part two. There will NOT be a reader for part three, instead lectures will be posted on bCourses at 24 hours before lecture.

Exam Reader: A reader with previous exams is available at Replica Copy (and on bCourses).

GRADING PROCEDURE: Grades will be determined numerically as follows:

Learning Catalytics (lecture questions) Points (3 X 12)	36 pt's.
Mastering Biology (3 X 24)	72 pt's.
Midterm Examinations (2 x 100)	200 pt's.
Final (67 for Dr. Doudna, 67 for Dr. Fischer, 166 for Dr. Feller	300 pt's.
Total:	608 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.** The grade distribution is set by the Department of Molecular Cell Biology. If necessary the class will be curved to match the distribution set by the department (which is followed each semester).

Electronic Assignments. Mastering Biology. The url for the online homework system is SPRING2020 You will need to have a "Purchase Code" which is available in the book purchased from Cal Student Store or The Student Store. A distribution of student scores in Mastering Biology will be generated and a grade scale from 0 to 26 points will be assigned. The maximum possible number of points will be 24. Thus if you have 18.5/26 of the total points you will get 18.5 points. If you had 25.2/26 of the total points you will get 24 points (the maximum). Thus it is possible for you to miss one or two assignments and still end up with the maximum. Each assignment is typically due by **8 AM of the start of the next lecture**. Extensions may be made as deemed necessary but the extension will be for the entire class, not just a few individuals. No extensions of deadlines. Each professor has their own set of **Mastering Biology** assignments but all will be available on the one course (UCBBIOLOGY1ASPRING2020). A specific handout will be posted on bCourses how the points will be distributed for Mastering Biology.

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 2021, 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). This letter will be modified by a faculty member or the course coordinator.

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.

Faculty evaluations. Your input is important and valuable. Ten minutes of each faculty's last lecture will be set aside for you to complete the evaluations.
1. Dr. Doudna 2/09-23 for evaluations. 10 minutes will be provided on 9/27 for evaluations.
2. Dr. Fischer 3/22- 4/5 for evaluations. 10 minutes will be provided on 11/1 for evaluations.
3. Dr. Feller 4/26—5/10 for evaluations. 10 minutes will be provided on 12/6 for evaluations.

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**). 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.

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/.

Schedule of Classes

Section	Disc. Time	Disc. Room		Section	Disc. Time	Disc. Room
101	M 11:00A-11:59A	587 Barrows		116	M 3:00P-3:59P	255 Dwinelle
102	M 11:00A-11:59A	185 Barrows		117	M 4:00P-4:59P	258 Dwinelle
103	M 11:00A-11:59A	104 Wheeler		118	M 4:00P-4:59P	87 Evans
104	M 11:00A-11:59A	224 Wheeler		201	Tu 8:00A-8:59A	246 Dwinelle
105	M 12:00P-12:59P	126 Wheeler				
106	M 12:00P-12:59P	124 Wheeler		203	Tu11:00A-11:59A	4 Evans
108	M 1:00P-1:59P	103 GPB		205	Tu 1:00P-1:59P	9 Evans
				206	Tu 1:00P-1:59P	70 Evans
110	M 1:00P-1:59P	224 Wheeler		207	Tu 2:00P-2:59P	136 Barrows
111	M 2:00P-2:59P	105 Dwinelle		208	Tu 2:00P-2:59P	251 Dwinelle
112	M 2:00P-2:59P	24 Wheeler				
113	M 2:00P-2:59P	2030 VLSB				
114	M 3:00P-3:59P	259 Dwinelle		211	Tu 4:00P-4:59P	83 Dwinelle
115	M 3:00P-3:59P	258 Dwinelle		212	Tu 4:00P-4:59P	283 Dwinelle

Biology 1A Calendar, Spring 2020

Lectures 1-8, 11-13 given by Professor Doudna. Lectures 9 to be given by Dr. Ross Wilson. Lectures 14-26: Professor Fischer, Lectures 27-38: Professor Feller. All readings are from the 11th edition of Campbell Biology by Reece et al.

Date	***Lect #***	***Lecture Topic***	***Reading***	***Bio 1AL Lab, Discussion***
Jan 22	1	Course introduction. Introduction to macromolecules. Protein structure & function	Ch. 1-3	No lab.
Jan 24	2	Structure and function: lipids, carbohydrates and nucleic acids	Ch. 4-5	
Jan 27	3	Cell structure and organization	Ch. 6	1: Safety and Equipment.
Jan 29	4	The structure of biological membranes	Ch. 7	
Jan 31	5	Cellular metabolism and biological catalysts	Ch. 8	
		*Deadline to drop = January 31		
Feb 3	6	Enzyme function	Ch. 8	2: Cells.
Feb 5	7	Regulation of enzymatic activity	Ch. 8	
Feb 7	8	Introduction to bioenergetics	Ch. 8	
Feb 10	9 (RW)	Cellular energy production – aerobic processes	Ch. 9	3: Enzymes, *Vibrio* isolation.
Feb 12	10	Cellular energy production – anaerobic processes	Ch. 9	
Feb 14	11	Photosynthesis-the light reactions	Ch. 10	
		Cell cycle and 10 minutes for evals	Ch 12	
Feb 17		**HOLIDAY**		No lab lecture. No lab.
Feb 19	12	Photosynthesis-CO_2 fixation and related processes	Ch. 10	
Feb 21**	13	Cell cycle and 10 minutes for evals	Ch 12	
		Feb 21 Deadline to change grade option **. Colleges of Chemistry and engineering.		
Feb 24		**MIDTERM 1 Date: Lectures 1-13. Rooms to be arranged.**	See handout	4: Photosynthesis, *Vibrio* isolation.
Feb 26	14	Meiosis and sexual life cycles	Ch 13	
Feb 28	15	Mendel and the gene idea	Ch 14	

Date	*Lect #*	*Lecture Topic*	*Reading*	*Bio 1AL Lab, Discussion*
March 2	16	The chromosomal basis of inheritance	Ch 15	5: Complementation I, PCR and GMB I.
March 4	17	DNA – the molecular basis of inheritance	Ch 16	
				(Th March 5) Lab exam 1 at 9:00-10:00 PM.
March 6	18	Gene expression – from gene to protein	Ch 17	
March 9	19	Regulation of prokaryote gene expression	Ch 18:1	6: Complementation II, PCR and And GMB II.
March 11	20	Regulation of eukaryote gene expression	Ch 18:2	
March 13	21	Viruses and transposons	Ch 19:1-2, 21:1-4	
March 16	22	Recombinant DNA tools and biotechnology	Ch 20	7: Complementation III and Bioinformatics.
March 18	23	Genomes	Ch 21:5	
March 20	24	Chromatin and epigenetics	Ch 18:2	
March 23		SPRING BREAK!		
March 30	25	Finish chromatin. Genetic regulation of developme	Ch 20:1-2 and Ch 21:1. 778-779	**Lab exam 2 Review**
April 1	26	Finish genetic regulation of development and 10 minutes for student evaluations		
				(Th April 2) Lab exam 2 at 8:00-10:00 PM.
April 3	27	Cell signaling	Ch. 11	
		* April 3 grading deadline (P/NP).		
April 6		**MIDTERM 2: Lectures 14-24. Rooms to be arranged.**	See handout.	8: Sensory input and genetic variation.
April 8	28	Development 1	Ch. 20.3	
April 10	29	Development 2	Ch. 21.6, 47.1-3	
April 13	30	Animal form and function	Ch. 40.1-3	9: Rat Anatomy.
April 15	31	Animal nutrition	Ch. 41.1, 41.2 first subsection, 41.3, 4	
April 17	32	Circulation and respiration	Ch. 42.1-3, 42.5, 940-947	
April 20	33	Osmoregulation and excretion	Ch. 44.1- 44.4.	10: Physiology & Exercise
April 22	34	Hormones and the endocrine system	Pp 997-1012	
April 24	35	The immune system	Pp. 950-958, 960-966	
April 27	36	The Neurons, synapse, signaling	Ch. 48.1-3	
April 29	37	The nervous system	Ch. 49.1, 50.5	**W April 29 Lab exam 3 at 8-10 PM**
May 1	38	Sensory and motor mechanisms	Ch. 50.1, 50.3	
May 4		**RRR week**		
May 11		**Biology 1A FINAL EXAM 8-11 AM.**	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.