Molecular And Cell Biology 102 [4 units]

Survey of the Principles of Biochemistry and Molecular Biology - Summer 2015
2050 VALLEY LSB
MWF 9:00-10:30 AM (Session B – Jun 8 to Aug14)
And two hours of discussion section/week.

Information, Guidelines and Policies

Instructor	Office	Office Hours	Email
Natalia Caporale	134 LSA	M 11:00 – 12:00PM W 12:00 -1:00 PM	caporale.n@berkeley.edu

Prerequisites / Credit
Biology 1A, 1AL, and Chemistry 3B (or equivalent courses). Recommended: a course in physical chemistry.

Credit option:
Students will receive 2 units of credit for 102 after taking 100 or C100A/Chemistry C130. Students will receive no credit for 102 after taking 110 and any of 100, 100B or C100A/Chemistry C130. No credit for 102 after taking Chemistry 135.

Description: This course is a comprehensive survey of the fundamentals of biological chemistry, including the properties of intermediary metabolites, the structure and function of biological macromolecules, the logic of metabolic pathways (both degradative and biosynthetic) and the molecular basis of genetics and gene expression.

Important Dates

Start of instruction	Mon	June 8
Holiday	Fri	July 4
Last day to drop or Withdraw for Refund	Fri	June 12
Last day to add /drop/ W the class	Fri	June 26
Last day to Change Grading Option	Fri	July 31
Last day of classes	Wed	Aug 12
Final exam	Fri	Aug 14 (during class time)

GSI's Sections and Contact Information

Cameron Baker	cameronkbaker@berkeley.edu	Sections 104
Sharanya Prasad	sprasad@berkeley.edu	Sections 101, 110
Evan Worden	evanjworden@gmail.com	Sections 102, 108
Hiep Tran	hiep@berkeley.edu	Sections 103, 107
Emilia Zin	emilia.zin@berkeley.edu	Sections 105, 106

Head GSI: Cameron Baker – Please contact her if you have questions about switching sections.

Class Sections (6% of final grade)

Sections 101	MW 11-12	155 BARROWS	GSI: Sharanya Prasad
Sections 102	MW 11-12	151 BARROWS	GSI: Evan Worden
Sections 103	MW 11-12	109 DWINELLE	GSI: Hiep Tran
Sections 104	MW 11-12	12 HAVILAND	GSI: Cameron Baker
Sections 105	MW 11-12	219 DWINELLE	GSI: Emilia Zin
Sections 106	MW 12-1	209 DWINELLE	GSI: Emilia Zin
Sections 107	MW 12-1	223 DWINELLE	GSI: Hiep Tran
Sections 108	MW 8-9	209 DWINELLE	GSI: Evan Worden
Sections 109	---- CANCELLED -----		
Sections 110	MW 8-9	109 DWINELLE	GSI: Sharanya Prasad

Required Textbook: Nelson and Cox Principles of Biochemistry (6th Edition).
Recommended Text: The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry, 6th Edition, by Marcy Osgood and Karen Ocorr, Worth.

How to Succeed in this Class: To succeed in this class, you need to be interested, motivated and stay on top of the topics we are covering in lecture. This is an intense course on a topic that can be sometimes challenging. Thus, attend lecture, do the readings and most importantly: ASK QUESTIONS!! We learn by asking questions, challenging our assumptions and making mistakes.

Exams in this class are based on topics that have been presented in class and discussed thoroughly. You will not be asked to comment or answer questions on topics that have not been presented beforehand, though you might be asked to elaborate on some of the concepts or build upon them. You should use the textbook to strengthen your knowledge and work with your classmates. **Forming a study group is highly recommended**.

Remember: While your grade will depend on your performance on all the class assignments and exams, a grade doesn't define success. What you learn from the class and take away with you is what really defines that!!

Below you will find guidelines for this class. Read them carefully and make sure to ask if anything is not clear!

Lectures: Lecture slides will be posted on bcourses, usually the day before the lecture.

Readings: Students are expected to read the materials before coming class. Reading assignments are listed on the Class Schedule and are from the textbook.

Discussion Sections: Discussion Sections will constitute 5% of your final grade. This will be based on attendance (75% of sections), completion of case studies in class and participation. **Case studies** will be given on specific dates of the Summer, and students will work in groups on them. Homeworks for completion will also be given. Completion of all case studies and homeworks is worth 3% of the discussion grade.
Note: If you would like to switch sections, contact the Head GSI, Cameron Baker < cameronkbaker@berkeley.edu>. **No one can switch without approval from the Head GSI.**

Clicker Questions: The course will have clicker questions during many of the lectures (but not all). Questions will be on material we have already covered or that is being covered in that particular lecture. Iclicker 1, 2 and + will work for this course. Clicker questions will be worth 5% of your final grade. **You must answer correctly 75% of the questions to obtain the 5%.**

Website: You should be enrolled in the class site on bcourses (https://bcourses.berkeley.edu/). All materials will be there. Make sure that your email is linked to the email in the bcourses account, as notifications will be sent through these emails.

Quizzes: There will be quizzes taken every week online on bcourses. These quizzes will help you stay on track for the exams. There will be a total of 9 quizzes, **the top 8** will be counted for the final grade.

Exams: There will be two midterm exams and a final (which is like a third exam). All exams are closed book, non-cumulative and aim to test your learning and understanding. They will include a mixture of multiple choice and short answer questions. All exams will be given during lecture periods (9:10-10:30 am). **Make-up exams will not be considered. Missing exams without prior communication with the instructor results in a zero grade in the exam.**

Early GSI; Mid - Summer Review and Final Reflection: After a couple of weeks of class, in the middle of the summer and at the end of the course, you will be asked complete an online survey about, your experiences, what you have learnt, etc. This will be done online on surveymonkey.com. Completing these three assignments **thoroughly and thoughtfully** is worth 1% of your grade. More details will be provided as the time comes. All commentaries will remain anonymous but we value your feedback!

Class Grading Policy:

Grades are based on the top 8 quizzes, clicker questions, discussion sections, in class work, two in class exams, a final exam and three online surveys.

Grades will be calculated as follows:

Top 8 Quizzes	6 % of final grade
Discussion Section	6 % of final grade.
In-class activities	1 % of final grade.
Clicker Questions	5 % of final grade (75% correct)
In Class Exams	54 % of final grade (27% each)
Final Exam	27 % of final grade
Mid-Summer and Final Class Reflections	1% of final grade

Detailed Exam Policies:

Students are required to take all of the exams. If you have a valid reason for missing an exam, it is your responsibility to inform the instructor as soon as possible, in writing, no later than two days after the exam. Examples of acceptable excuses are incapacitating illness or death in the immediate family, with a doctor's note; or a serious traffic accident, with a police report. A standardized exam such as the MCAT or GRE is an acceptable excuse only when the standardized exam occurs at the same time as the MCB 102 exam. **If you are excused, your overall exam grade (81%) will be calculated from the other 2 exams.** Alternatively, you may request a grade of "incomplete" and complete the missing work in the following semester. Please note however that an incomplete grade can only be issued for students who have missed no more than one of the three major exams and who are doing satisfactory work (C- or better) in the exams completed. **There can be no exceptions to this policy.**

Requests to correct clerical or procedural errors in grading midterm exams must be submitted in writing to your TA, along with your exam, **no later than one week after** the exams have been returned to the class. The instructors and TAs will not discuss such issues until you have explained your case in writing. **Midterm exams written in pencil or erasable ink will not be eligible for any type of re-grading.** Exams will not be re-graded when less than one point is at issue. When one question is re-graded, the entire exam may be re-graded. **Answers that are illegible or in any other way ambiguous will be given zero points when grading.**

Cheating and Plagiarism:

Cheating of any sort is an extremely serious offense. In addition to resulting in an F for the course, cheating may result in further punishment including suspension from the University at the recommendation of the Student Conduct Officer.

Final Course Grade:

Letter grades for the course are assigned on a "curve." The instructor reviews the grades of each student and make every attempt to be fair. In the past, scores in the range of the mean and the median have been assigned a grade of B-.

Note: In accord with University Policy, no change of the grade filed in the end-of-semester course report is permitted "…on the basis of reassessment of the quality of a student's work." Changes can only be made to correct clerical or procedural errors such as "…errors in adding scores or transcribing grades."

Disabled Students Program:

If you need disability/medical-related accommodations in this class or you need special arrangements in case the building must be evacuated, please inform me as soon as possible. Please see me privately after class, during my office hours, or send me an email. If you need special exam accommodations, please obtain a letter of recommendation from the Disabled Students Program and deliver it to Professor Caporale ASAP.

Class Schedule (might change) – Only initial CS and HW are shown- Check ONLINE

Lec #	Date	Day	Topic	Readings	Activity
1	6 / 8	M	Introduction to the Class and Energy	Chapter 1	
2	6 / 10	W	Water & Buffers	Chapter 2	
3	6 / 12	F	Amino Acids	Chapter 3	
4	6 / 15	M	Protein Structure	Chapter 4	Bring HW 1 **Quiz 1 (11:55pm)**
5	6 / 17	W	Protein Structure & Studying Proteins	Chapter 3, 4	Case Study 1 in DS
6	6 / 19	F	Protein Purification Techniques	Chapter 3	
		Tu Home	Flipped Section – Lecture 6: Sequencing Needed for Case Study [MUST RECORD LEC]		
7	6 / 22	M	Enzyme action	Chapter 5, 6	Case Study 2 in DS **Quiz 2 (11:55pm)**
8	6 / 24	W	Enzyme Regulation	Chapter 6	
9	6 / 26	F	Lipids and Carbohydrates	Chapter 7, 10	GSI Survey due (11:55 pm)
10	6 / 29	M	Bioenergetics and Intro to Glycolysis	Chapter 13	**Quiz 3 (11:55pm)**
	7 / 1	W	**Exam 1 (Lec 1 – 9)**		
	7 / 3	F	**4th of July Holiday – Enjoy!**		
11	7 / 6	M	Glycolysis	Chapter 14	**Quiz 4 (11:55pm)**
12	7 / 8	W	Krebs Cycle	Chapter 16	
13	7 / 10	F	Electron Transfer Chains	Chapter 19	Mid-term survey due (11:55pm)
14	7 / 13	M	Lipids & Fatty Acid Metabolism (Guest Lecture)	Chapter 17	**Quiz 5 (11:55pm)**
15	7 / 15	W	De novo synthesis (Guest Lecture - GL)	Chapter 20 (and a bit of 21,22)	
16	7 / 17	F	Nitrogen, AA oxidation and Urea Cycle (GL)	Chapter 18	
17	7 / 20	M	Regulation of metabolism	Chapter 15, 23	**Quiz 6 (11:55pm)**
18	7/ 22	W	Photosynthesis (GL)	Chapter 19	
19	7 / 24	F	What is left / Metabolic Disorders (GL)		
20	7 / 27	M	DNA Structure	Chapter 8, 24	**Quiz 7 (11:55pm)**
	7 / 29	W	**Exam 2 (Lec 10 – 19)**		
21	7 / 31	F	DNA Replication	Chapter 25	
22	8 / 03	M	DNA Repair & Recombination	Chapter 25	**Quiz 8 (11:55pm)**
23	8 / 05	W	Transcription & Splicing and RNAi	Chapter 26	
24	8 / 07	F	Translation	Chapter 27	
25	8 / 10	M	Regulation of Gene Expression	Chapter 28	**Quiz 9 (11:55pm)**
26	8 / 12	W	Biochemistry of Epigenetics or Remaining Topic		
	8 / 14	F	**Final Exam (Lec 20-26)**		Final Survey Due (11:55pm)