CHEM 153A – Biochemistry: Introduction to Structure, Enzymes, and Metabolism Winter 2011

Instructor
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Course website
http://web.chem.ucla.edu/~rebecca/153A/

Textbook
Nelson & Cox. *Lehninger* Principles of Biochemistry 5th Edition, W.H. Freeman, 2008.

Teaching assistants

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Lectures
1) MTWF 9:00-9:50 am, CS 50
2) MTWF 11:00-11:50 am, CS 24
Please attend the lecture in which you are enrolled.

Course mission statement
To help students learn the fundamental ideas and language of biochemistry so that they may recognize, understand, and communicate sound science.

Tentative lecture schedule

WEEK	DATE, DAY		TOPIC	PAGES IN TEXT	QUIZZES & EXAMS
1	Jan 3	**M**	Introduction & overview	(1-42 for review)	
	4	**T**	Water, Acid-base chemistry, Buffers	43-66	
	5	**W**	Amino acids	71-81	
	7	**F**	Peptides and proteins	82-4, 113-5, 140-3, 145-8	
2	10	**M**	Protein sequence (1°) and evolution	92-4, 102-6	
	11	**T**	Protein conformation and 2° structure	115-128	Amino acids quiz
	12	**W**	Protein folds and assemblies (3°, 4°)	129-131, 135-140	in discussion this week
	14	**F**	Carbohydrates – mono & disaccharides	235-244	
3	17	**M**	*Martin Luther King Holiday*		
	18	**T**	Carbohydrates – oligo and polysaccharides	244-263	Carbohydrates quiz
	19	**W**	Lipids	343-363, 513	in discussion this week
	21	**F**	Membranes	371-375, 381-386	
4	24	**M**	Membrane proteins	375-380, 389-396	Fatty acids quiz in disc.
	25	**T**	Methods in biomolecular structure analysis	94-100, 122, 132-4, 263-5, 365-6	
	26	**W**	Molecular binding and allostery	153, 155-7, 162, 164-5	**Exam 1**
	28	**F**	Myoglobin & hemoglobin	154-5, 157-160	**Thurs, 1/27, 5-6:50 pm**
5	31	**M**	Hemoglobin: O_2 binding and effectors	161, 163-4, 165-170	
	Feb 1	**T**	Enzyme catalysis and classification	183-188, 495-501	
	2	**W**	Mechanisms of enzyme catalysis	188-194, 210-211	
	4	**F**	Mechanisms continued; Lysozyme	213-216	
6	7	**M**	Serine proteases	205-209	
	8	**T**	Enzyme kinetics	194-201	
	9	**W**	Kinetics of enzyme inhibition	201-204	
	11	**F**	Enzyme regulation	220-228	
7	14	**M**	Metabolism	485-495, 569-577	
	15	**T**	Energy currencies	501-511, 516-521	**Exam 2**
	16	**W**	Glycolysis	527-531	**Thurs, 2/17, 5-6:50 pm**
	18	**F**	Glycolysis	532-538	
8	21	**M**	*Presidents' Day Holiday*		
	22	**T**	Glycolysis	539, 551-558, 633-634	Glycolysis quiz
	23	**W**	Fermentation	546-551	in discussion this week
	25	**F**	Pyruvate dehydrogenase complex	615-620	
9	28	**M**	Citric acid cycle	620-630	
	Mar 1	**T**	Citric acid cycle	630-638	Cofactors quiz
	2	**W**	Oxidative phosphorylation	707-712, 512-516	in discussion this week
	4	**F**	Electron transport	712-716	
10	7	**M**	Electron transport & shuttle systems	716-722, 731-736	
	8	**T**	ATP synthase	723-731	Citric acid cycle quiz
	9	**W**	Catch-up and summary		in discussion this week
	11	**F**	Q&A		
Finals	**15**	**T**	**Final Exam: 3-6 pm**		

Enrollment and drop policies
PTE numbers are not given out for chemistry classes. Students on the waitlist or not yet enrolled are usually able to get into the course (although there are no guarantees). All students may attend lecture and discussion and take quizzes until their status is finalized. Students enrolled in a section that they cannot attend should use the course discussion board to find another student willing to swap enrollments (if the desired section is full). For enrollment questions or needs, see Denise Mantonya in the Chemistry Undergraduate Office, Young Hall 4009. Since this is an impacted course, students may freely drop only up until Friday of the 2nd week of the quarter. Requests to drop after this date require a sufficient reason and may or may not be approved.

Academic honesty policy
Any suspected problems involving academic honesty will be reported immediately to the Office of the Dean of Students.

Quiz & exam policies
Quizzes must be taken in the discussion section in which you are enrolled. No make-up quizzes or exams will be given, and exams will be offered only at the indicated times. Your lowest quiz score will be dropped. Regrade requests must be submitted to Dr. Nelson within *two weeks* of the return of the graded quiz or exam. (See the course website for further details, including quiz & exam coverage.) Exam scores will not be posted online or sent via email; you may pick up your exam in class.

Grading

6 Quizzes, 10 points each (lowest quiz score is dropped)	= 50 points
2 Evening exams, 100 points each	= 200 points
Final exam	= 200 points
Total	= 450 points

Grading Scale
Grades are determined based on performance. The quality of student answers on exams will be considered, and score boundaries for grades will be determined based on this quality. Grade scales will be announced in class following the grading of each exam. If all students give high-quality answers, all students will receive A's!

Discussion Board – extra credit!
Post questions &/or answers on the class discussion board to earn up to 10 extra credit points for the quarter. Earn up to 2 points every two weeks. See the course website for more info. *Please note that I will not answer biochemistry questions over email – post these to the discussion board for your peers to answer, or ask in lecture, discussion, or office hours instead.*

Tips for succeeding in this course
- Attend lectures and discussions; arrive on time
- Read the textbook before the corresponding lecture
- Complete missing/unclear notes after lecture
- Seek help immediately if you don't understand a concept
- Review your notes regularly
- Work through suggested problems and old exams
- Attend office hours regularly
- Use the discussion board for questions and review
- Review lecture podcasts as needed
- Keep up with the course; don't procrastinate
- Start learning and reviewing **today**!

First assignment: Learn how to learn
Read the handout, "Learning (Your First Job)," and take the online Learning Style Survey, both of which are linked from the class website. (My survey results were: Visual/Verbal: 36; Visual/Nonverbal: 36; Auditory: 22; Kinesthetic: 20). How will you apply the suggested learning techniques to your study of biochemistry?

Schedule of lectures, discussions, and office hours

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00	*OH – Natalie, Boyer 219*	1A, Young 2200 – Alex 2A, Boelter 4413 – Natalie	1D, MS 5148 – Theresa 2C, MS 5233 – Natalie	2F, Boelter 4413 – Natalie	2H, Boelter 5264 – Han
9:00	**Lecture 1: CS50**	**Lecture 1: CS50** 2B, Boelter 5272 – Alex	**Lecture 1: CS50** 2D, Boelter 5252 – Megan	1G, Boelter 9436 – Megan	**Lecture 1: CS50**
10:00			*OH – Megan, Young 6096*	*OH – TA's (rotating), Young 6096*	
11:00	**Lecture 2: CS24**	**Lecture 2: CS24**	**Lecture 2: CS24**		**Lecture 2: CS24**
12:00		*OH – Dr. Nelson*	*OH – Dr. Nelson*		1K, Young 3069 – Han
1:00	*OH – Dr. Nelson*	1B, Franz 258A – Alex	2E, MS 5233 – Megan	1H, Young 1044 – Dan	1L, PAB 1749 – Han 2I, MS 5217 – Dan
2:00	*OH – Dr. Nelson*	1C, Young 1044 – Theresa	1E, Young 1044 – Theresa	2G, Bunche 3143 – Dan	
3:00	*OH – Theresa, location TBD*	*OH – Dan, BSRB 3rd floor common area*	*Dr. Nelson's Coffee Hour*		