

# CHEM 32002 BIOCHEMISTRY I - Spring 2017

INSTRUCTOR: Ronnie Ghose

TIMES: Monday, Wednesday, 9:30-10:45 AM

LOCATION: MR 4

Date	Day	Chapter	Suggested Problems
Jan 30	M	3 Amino acids, peptides, proteins	1-3, 5, 6, 9-11, 19
Feb 1	W	3 Amino acids, peptides, proteins	1-3, 5, 6, 9-11, 19
6	M	4 Protein Structure	1, 2, 4-10
8	W	4 Protein Structure	1, 2, 4-10
13	M	<i>College closed</i>	
15	W	5 Protein Function	1-6
20	M	<i>College closed</i>	
22	W	5 Protein Function	1-6
27	M	6 Enzymes	1, 3, 4, 6-13, 19
Mar 1	W	6 Enzymes	1, 3, 4, 6-13, 19
6	M	<b>EXAM I (Chapters 3, 4, 5, 6)</b>	
8	W	Evolution: Protein Structure and Function	
13	M	Evolution: Protein Structure and Function	
15	W	8 Nucleic Acids and Structure	2, 7, 12-14
20	M	7 Carbohydrates	1, 2, 10, 12, 13
22	W	11 Biological Membranes	2, 4, 6-8, 11-15, 17-19
27	M	11 Biological Membranes	2, 4, 6-8, 11-15, 17-19
29	W	14 Glycolysis	1, 10-16, 19, 24-28
Apr 3	M	14 Glycolysis	1, 10-16, 19, 24-28
5	W	<b>EXAM II (Chapters 7, 8, 11, 14)</b>	
10	M	<i>College closed</i>	
12	W	<i>College closed</i>	
17	M	<i>College closed</i>	
19	W	15 Glucose and Glycogen	1, 4, 5, 7, 8, 11
20	T	15 Glucose and Glycogen (Monday schedule)	1, 4, 5, 7, 8, 11
24	M	16 Citric Acid Cycle	16, 18, 19, 30, 32
26	W	16 Citric Acid Cycle	16, 18, 19, 30, 32
May 1	M	<b>EXAM III (Chapters 15, 16)</b>	
3	W	17 Fatty Acid Oxidation	8, 9, 23, 24, 27
8	M	17 Fatty Acid Oxidation	8, 9, 23, 24, 27
10	W	19 Oxidative Phosphorylation	2, 4, 9, 21, 23
15	M	19 Oxidative Phosphorylation	2, 4, 9, 21, 23
17	W	<b>EXAM IV (Chapters 17, 19)</b>	

**TEXTBOOK:** Lehninger, Nelson, and Cox, "Principles of Biochemistry", Worth Publishing, Inc., 2008 5<sup>th</sup> edition

**OFFICE HOURS:** W, 10:50-11:50 AM, Room MR-1219 or by appointment.

**OBJECTIVES:** The objectives of the course are for students to become familiar with structures of amino acids, proteins, nucleic acids, carbohydrates, and membranes. Students will learn about protein structure, protein function, protein evolution, protein regulation, DNA/RNA structure, and metabolism including glycolysis, citric acid cycle and oxidative phosphorylation.

**REQUIREMENTS:** A strong understanding of chemistry, in particular organic chemistry, is required. The use of a computer is highly encouraged, as protein structures will be studied in detail using freely available software.

**LECTURE NOTES:** Lecture notes will be posted after a chapter has been discussed in class. Notes will be available at the following website: <http://www.ghoselab.org/teaching.html>

**EXAMINATIONS:** All four examinations are mandatory and non-cumulative. There will be no final examination. All exams will have equal weightage of 25%.

**HOMEWORK PROBLEMS:** The problems listed above are optional and will not be graded. I am happy to discuss them during office hours or by appointment.

**GRADING:** Grades from all four exams will be based on numerical scores between 0-50; these will be converted into letter grades on a standard scale of:

97-100: A+; 93-96: A; 90-92: A-

87-89: B+; 83-86: B; 80-82: B-

77-79: C+; 73-76: C; 70-72: C-

69-60: D

59 or lower: F

Note that these cutoffs will apply to any exam with a mean of 73 or higher; for exams with means below 73, I will add a uniform amount to all exam scores sufficient to bring the mean up to 73. Your final grades for the semester will be calculated by summing the numerical scores for each of the four exams, multiplying by 2, adding any additional credit (see below), dividing by 4, and converting these into a final semester letter grade on the scale above.

**EXTRA-CREDIT:** Write a short review of an article that has appeared in either the scientific (Nature, Science et.) or the popular literature (New York Times, The Economist, Scientific American etc.) describing some aspect of biochemistry (up to 25 points). Articles chosen should have appeared no earlier than January 1, 2014 and should be cleared with me ahead of time. Please use the template that appears on the website and email it to [rguose@ghoselab.org](mailto:rguose@ghoselab.org). **This summary should be mailed to me prior to the fourth examination.**