

**Chemistry 370**  
**Biochemistry**  
**Fall 2014**

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Lectures: 8:30 – 9:45 on TuTh in Crown Center Auditorium

Discussions: Tu 10:00 – 10:50 am in Mudelein 607

Th 10:00 – 10:50 am in Cuneo 117

**TENTATIVE SCHEDULE OF LECTURES AND QUIZZES**

#	Day	Date	Subject	Chapters	Lecture
1	Tu	8/26	Introduction: Biomolecules & Water	1	1
2	Th	8/28	Water & pH	1	2&3
3	Tu	9/2	Amino Acids, Peptides and Proteins	2	5&6
4	Th	9/4	Amino Acids, Peptides and Proteins	2	5&6
5	Tu	9/9	Exploring Proteins	3	7&8
6	Th	9/11	Exploring Proteins	3	7&8
7	Tu	9/16	Flow of Genetic Information	4	9&10
8	Th	9/18	Exploring Genes	5	11&12
9	Tu	9/23	Test 1	1 – 5	
10	Th	9/25	Evolution & Bioinformatics	6	14&15
	Sat	9/27	Midwest Enzyme Chemistry Conference at Northwestern		
11	Tu	9/30	Hemoglobin	7	16&17
12	Th	10/2	Enzymes: Basic Concepts & Kinetics	8	18&20
13	Tu	10/7	Fall Break – no class		
14	Th	10/9	Enzymes: Catalytic Strategies	9	21&22
15	Tu	10/14	Regulation: Enzymes	10	23&24
16	Th	10/16	Regulation: Enzymes	10	23&24
17	Tu	10/21	Test 2	6 – 10	
18	Th	10/23	Carbohydrates	11	26
19	Tu	10/28	Lipids and Membranes	12	27&28
20	Th	10/30	Channels and Pumps	13	29&30
21	Tu	11/4	Signal Transduction	14	31-33
22	Th	11/6	Signal Transduction	14	31-33
23	Tu	11/11	Test 3	11 – 14	
24	Th	11/13	Metabolism and Bioenergetics	15	35
25	Tu	11/18	Glycolysis and Gluconeogenesis	16	36&37
26	Th	11/20	Glycolysis and Gluconeogenesis	16	36&37
27	Tu	11/25	Citric Acid Cycle	17	41&42
28	Th	11/27	Thanksgiving Break – no class		
29	Tu	12/2	Oxidative Phosphorylation	18	43&44
30	Th	12/4	Summary of Metabolism	27	45

**Required Text:** Berg, Tymoczko and Stryer, *Biochemistry*, 7<sup>th</sup> Ed.

You should read the appropriate chapter **before** class. Please realize that I will not have time to lecture on every topic but will emphasize what I consider to be the most important topics. Obviously, these more important topics will be emphasized on examinations but you are responsible for all of the text, lecture and discussion material.

**Recommended Text:** Deis, et al. (2011) 7<sup>th</sup> edition, *Student Companion to Accompany Biochemistry*.

**Office Hours:** During the hour after any discussion. Additional hour hours will be announced.

**Grading Policy:** There are 3 tests and a final examination during the course. There will be 100 points possible on each test and 200 on the final. The final examination will be 50% on new material and 50% on the material covered in Tests 1 to 3. If one of the regular examinations is the lowest score, it will be dropped and the final will count 200 points. If the final examination is the lowest score, then all four examinations will count 100 points each. In addition there will be homework problems worth at total of 50 points that will be graded only on the basis of being honestly attempted and turned in on time. You may work these problems in groups but I would like written answers from each you individually. Finally, there will be an additional 50 points assigned to the discussion sections. This will be graded on participation in the Discussion Section activities, including assignments turned in as part of the discussion section activities. Thus the course grade will be determined on the basis of 500 possible points. The course is curved. There will be a cumulative curve given in class after each examination so that you will always know how you are doing. No make-up tests will be given. If you miss a test for any reason, then your final will automatically count 200 points. If you miss more than one test a make-up examination will be given at my discretion. Minimally, a written doctor's or judge's note and notification prior to the quiz (via phone or e-mail) will be needed for any missed test to be made up.

Note that the last day to withdraw from the course without getting a WF is Friday, Oct. 31.

**Tests:** The tests will be a mixture of multiple choice, problems and short essays.

**Independent Effort:** Students are referred to <http://www.luc.edu/media/lucedu/cas/pdfs/academicintegrity.pdf> for the CAS Statement on Academic Integrity. Students are advised to download and read the statement as it will be part of the governance of their efforts

in the course. In addition, as pre-professional students at Loyola University Chicago, it should be obvious at this stage of your careers that all answers on examinations must arise from independent, honest efforts. Nothing less is acceptable in the Land of Lincoln. Thus, any student found cheating on any examination will receive an automatic "0" for that examination. His (her) name will be reported to Prof. Mota de Freitas, the Chairperson of the Chemistry and Biochemistry Department, as well as to the Dean of the College of Arts and Sciences, who will decide whether further disciplinary action is necessary. We remind you that such an incident will become part of one's personal record and may be transmitted to organizations such as medical schools, dental schools, pharmacy programs, graduate programs, etc. Together, we encourage you to become the best that you can be, and will work with you to achieve that goal.

**Appropriate In-class Behavior and Electronic Devices:** In this course it is incumbent upon you, as a student, to maintain a professionalism and code of conduct appropriate with the course material and course enrollment. To this end, rude, disruptive behavior (such as talking during class, viewing computer materials not concerning class subjects, etc...) **will not be tolerated**. It is acceptable to use laptops or comparable devices (tablets, iPads, etc.) for taking notes in class. Voice recording but not visual recording is allowed. Cell phones, pagers, wireless PDAs, etc. must be turned off during class. If your device is activated during class, you must leave the class immediately and cannot return for the duration of that class period.

**Sakai:** I plan to use the Sakai website (see link on LUC website) for all class notes and announcements. Please ask me for a handout for instructions on how to use this site if you are not already familiar with it. It is essential that you access the site regularly to do well in this class.

**Help Sessions:** I will schedule a help session the day before each exam (including the final) to answer last minute questions you have on the material. These help session will be held in the lecture room unless it is occupied by another class. This is in addition to the regular office hours.

### **Discussion Activities:**

There will be an opportunity in all discussion sections for you to ask questions but most of these sections (except the ones the week before a test) will have activities planned for them. You should attend the one that you are registered for, but feel free to attend both for the test preparation sessions.

Week	Dates	Activity
1	8/26 & 8/28	Complex pH problems
2	9/2 & 9/4	More pH problems & 1 <sup>st</sup> paper

3	9/9 & 9/11	Protein structure papers
4	9/16 & 9/18	Prep for test 1- You can attend both sessions.
5	9/23 & 9/25	VMD -protein structure – bring your laptop if you have one
6	9/30 & 10/2	Enzyme papers
7	10/7 & 10/9	Enzyme papers
8	10/14 & 10/16	Prep for test 2 – You can attend both sessions.
9	10/21 & 10/23	Comparative Modeling
10	10/28 & 10/30	Comparative Modeling
11	11/4 & 11/6	Prep for test 3 – You can attend both sessions.
12	11/11 & 11/13	Evolution of pathways papers
13	11/18 & 11/20	Control of metabolism papers
14	11/25 & 11/27	Thanksgiving break – no discussion either day to keep it even
15	12/2 & 12/4	Prep for final exam – You can attend both sessions.

**Problem Due Dates: Assignments are due at the beginning of class.**

Problem Set	Due Date	Topic
1	9/2	pH problems
2	9/9	amino acids and proteins
3	9/16	amino acid sequence problems & genes
4	9/23	no problems due
5	9/30	hemoglobin
6	10/7	enzyme kinetics
7	10/14	enzyme catalysis and regulation
	10/21	no problems due
8	10/28	carbohydrates, lipids and membranes
9	11/4	signal transduction
10	11/11	no problems due
11	11/18	metabolism, glycolysis & gluconeogenesis
12	11/25	citric acid cycle & ox-phos
13	12/2	integration of metabolism