

SPRING SEMESTER 2012
SURVEY IN BIOCHEMISTRY
CELLULAR PHYSIOLOGY AND BIOCHEMISTRY
CHEMISTRY 361/461 and BIOLOGY 366

INSTRUCTORS: Drs. D. Mota de Freitas, S. Kanzok, lecturers

Dr. Pamela Osenkowski, discussion leader

TIME AND LOCATION: LECTURE: Tu, Th 1:00 - 2:15 pm, Flanner Hall 133

DISCUSSION: Tu, 4:00 – 4:50 pm or Th, 8:30 - 9:20 pm, Crown Center Auditorium

REQUIRED TEXT: J.L. Tymoczko, J.M. Berg and L. Stryer (2010) *Biochemistry: A Short Course*, 1st ed., W. H. Freeman.

TENTATIVE SCHEDULE OF LECTURES AND EXAMINATIONS

Lecture#	Day	Date	Topics from Tymoczko <i>et al.</i>	Chapter	Lecturer
1	Tu	1/17	Introduction to Biochemistry	1	DF
2	Th	1/19	Water and pH	2	DF
3	Tu	1/24	Amino Acids	3	DF
4	Th	1/26	Protein Structure	4	DF
5	Tu	1/31	Protein Structure	4	DF
6	Th	2/2	Exploring Proteins	40	DF
7	Tu	2/7	Nucleic Acid Structure	32	DF
8	Th	2/9	Exploring Genes	41	DF
	Tu	2/14	Examination I Chapters 1-4, 32, 40, 41		DF
9	Th	2/16	Enzyme Action & Kinetics	5,6	DF
10	Tu	2/21	Allosterism	6	DF
11	Th	2/23	Enzyme Inhibition	7	DF
12	Tu	2/28	Enzyme Mechanisms & Hemoglobin	7,8	DF
13	Th	3/1	Carbohydrates	9	DF
	Tu,Th	3/6-3/8	Spring Break		
14	Tu	3/13	Lipids & Membrane Structure	10,11	SK
15	Th	3/15	Channels and Pumps	11	SK
16	Tu	3/20	Signal Transduction	12	SK
	Th	3/22	Examination #2 - Chapters 5 – 12		DF,SK
17	Tu	3/27	Overview of Metabolism & Bioenergetics	13,14	SK
18	Th	3/29	Glycolysis & Gluconeogenesis	15,16	SK
19	Tu	4/3	Citric Acid Cycle	17,18	SK
20	Th	4/5	ET Chain & Oxidative Phosphorylation	19,20	SK
21	Tu	4/10	Glycogen Metabolism	23,24	SK
22	Th	4/12	Pentose Phosphate Metabolism	25	SK
23	Tu	4/17	Fatty Acid Metabolism	26,27	SK
24	Th	4/19	Biosynthesis of Lipids and Nucleotides	28,30	SK
25	Tu	4/24	Overview of Amino Acid Metabolism	29,31	SK
26	Th	4/26	Integration of Metabolism		SK
	F	5/4	Final Examination (1:00 pm - 3:00 pm): (60% Chapters 13-20, 23-31; and 40% Chapters 1-12,32,40,41)		

COURSE OBJECTIVES

Life is based on four principle cellular components: proteins, lipids, carbohydrates and nucleic acids. Biochemistry is concerned with the structure, function and interactions of these compounds with one another and their environment. As such biochemistry plays a vital part in all aspects of the medical sciences since it not only helps us to understand how the (human) cell works on a molecular level but also how to decipher and possibly counter pathogenic conditions. Consider that almost all drugs used in medical treatment target proteins or groups of proteins to modulate their biochemical properties. In this course, we will focus on proteins and nucleic acids, their structure-function relationships, kinetics and regulation. We will also look at lipid-, carbohydrate, and nucleic acid-metabolisms, and their impact on cells, tissues and (human) organisms.

EXAMINATION AND GRADING PROCEDURES AND POLICY

The Biochemistry course employs multiple choice questions for testing. Three major lecture examinations will be administered during this spring session. The first two examinations are worth 30% apiece, while the cumulative final examination represents 40%. The three exam scores will be combined into one final % grade, which will be translated into a letter grade using the following scale:

A = 100-85
A- = 84-80
B+ = 79-75
B = 74-70
B- = 69-65
C+ = 64-60
C = 59-55
C- = 54-50
D+ = 49-45
D = 44-40
F = Less than 40

For missed exams, a **written** doctor's or judge's excuse, a letter from a funeral director, documentation supporting an officially-approved activity or a Medical School interview will be required by the appropriate instructor(s). **Notification must be submitted prior to the examination. NO EXCEPTIONS WILL BE MADE!** No make-up exams will be given. The score for a legitimately missed exam will be based on the prorated performance on the next exam.

Discussion sessions will primarily be used as review sessions or practice sessions that the instructors deem require extra time to master well. You have either a Tuesday or Thursday discussion section assigned as part of your course registration. Practice sessions will be held on Th, 1/26, Tu, 1/31, Tu, 2/28 and Th, 3/1. Review sessions will be held on Tu, 2/7, Th, 2/9, Tu, 3/20, Th 3/22, Tu 4/24 and Th, 4/26.

Outside of class, you may contact each of your Instructors during regularly scheduled office hours, which are Tu, 2:20 – 3:50 pm and Th, 9:30 - 11:00 am for Dr. Mota de Freitas and Th, 10:00-11: am for Drs. Kanzok Osenkowski in Dr. Stefan's office. Their office locations, telephone numbers, and e-mail addresses are:

Dr. Mota de Freitas, Flanner Hall-125, (773) 508-7045 dfreita@luc.edu

Dr. Kanzok, Quinlan (LSB) 427, (773) 508-3790 skanzok@luc.edu

Dr. Osenkowski, Quinlan (LSB) 119, (773) 508-3688 posenkowski@luc.edu

If you are unable to contact the Instructor directly, or by voice or e-mail, you may leave your message with the Biology Departmental Office, (773) 508-3623 for Drs. Kanzok and Osenkowski or the Chemistry Departmental Office, (773) 508-3100 for Dr. Mota de Freitas.

Students with Disabilities

If you have any special needs, please inform the instructors within the first week of classes so that accommodations can be made.

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 Dr. Castignetti, the Chairperson of the Biology Department, Dr. Mota de Freitas, the Interim Chairperson of the Chemistry 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

This course is one with a large enrollment. 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.

Blackboard and Lecture Notes

The Instructors plan to use Blackboard to distribute lecture notes and slides. The web address for this site is found at Loyola's homepage. Go to "Loyola links" and then click on "Blackboard." Blackboard will ask for your universal ID and password and once these have been correctly entered, Blackboard will list all of those courses for which you are enrolled and for which a Blackboard course exists. Chemistry 361/461 or Biology 366 should be one of those courses. We will make every effort to have the materials that are to be posted on the site at least a day before the lecture so that you can print them and bring them to class. A word of foreknowledge is that the PowerPoint presentations can be quite large (on the order of megabytes) and hence, if one does not have a high-speed internet connection at home, one should consider using Loyola's computer resources to download the materials.

Error Policy

The instructors reserve the right to amend or correct this syllabus.