

**SPRING SEMESTER 2013**  
**SURVEY IN BIOCHEMISTRY (CHEM 361/461) and**  
**CELLULAR PHYSIOLOGY AND BIOCHEMISTRY (BIOL 366)**

**INSTRUCTORS:** Prof. D. Mota de Freitas and Prof. S. Kanzok

**TIMES AND LOCATIONS:** LECTURE: Tu, Th 1:00 - 2:15 pm, Galvin Auditorium

DISCUSSION: Tu, 4:00 – 4:50 pm, LSB 142 or Wed, 2:45 - 3:35 pm, Cuneo 210

**REQUIRED TEXT:** Mary K. Campbell and Shawn O. Farrell (2012) *Biochemistry*, 7th ed., Brooks/Cole, Cengage Learning.

**TENTATIVE SCHEDULE OF LECTURES AND EXAMINATIONS**

Lecture#	Day	Date	Topics from Campbell & Farrell	Chapter	Lecturer
1	Tu	1/15	Introduction; Water and pH	1,2	DMF
2	Th	1/17	Water and pH (cont.)	2	DMF
3	Tu	1/22	Amino Acids and Peptides	3	DMF
4	Th	1/24	Protein Structure and Non-covalent Interactions	1,4	DMF
5	Tu	1/29	Hemoglobin and Protein Folding	4	DMF
6	Th	1/31	Protein Purification	5	DMF
7	Tu	2/5	Enzyme Action & Kinetics	6	DMF
8	Th	2/7	Review		DMF
	<b>Tu</b>	<b>2/12</b>	<b>Examination I (Chapters 1-6)</b>		<b>DMF</b>
9	Th	2/14	Enzyme Mechanisms & Regulation	7	DMF
10	Tu	2/19	Enzyme Mechanisms & Regulation	7	DMF
11	Th	2/21	Lipids & Membrane Structure	8	DMF
12	Tu	2/26	Nucleic Acid Structure	9	DMF
13	Th	2/28	Bioenergetics	15	DMF
	<b>Tu,Th</b>	<b>3/5-3/7</b>	<b>Spring Break</b>		
14	Tu	3/12	Carbohydrates	16	SK
15	Th	3/14	Glycolysis	17	SK
16	Tu	3/19	Review		SK, DMF
	<b>Th</b>	<b>3/21</b>	<b>Examination II (Chapters 7–9; 15 -17)</b>		<b>DMF,SK</b>
17	Tu	3/26	Glycogen Metabolism	18	SK
18	Th	3/28	Gluconeogenesis	18	SK
19	Tu	4/2	Pentose Phosphate Pathway	18	SK
20	Th	4/4	Citric Acid Cycle	19	SK
21	Tu	4/9	ET Chain	20	SK
22	Th	4/11	Oxidative Phosphorylation	20	SK
23	Tu	4/16	Fatty Acid Metabolism	21	SK
24	Th	4/18	Biosynthesis of Lipids	21	SK
25	Tu	4/23	Nitrogen Metabolism	23	SK
26	Th	4/25	Integration of Metabolism	24	SK
	<b>F</b>	<b>5/3</b>	<b>Final Examination (1:00 pm - 3:00 pm): (60% Chapters 18-21, 23,24; and 40% Chapters 1-9,and 15-17)</b>		

## 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 at 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, the instructors will require 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. **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. Thus, they will not be offered every time; see schedule at the end of this paragraph. You have either a Tuesday or Wednesday discussion section assigned as part of your course registration. *Practice sessions* will be held on Tu, 1/22 (DMF) and Wed, 1/23 (DMF). *Review sessions* will be held on Tu, 2/5 (DMF), Wed, 2/6 (DMF), Tu, 3/19 (DMF and SK), Wed 3/20 (DMF and SK), Tu 4/23 (SK and DMF) and Wed, 4/24 (SK and DMF).

Outside of class, you may contact each of your Instructors during regularly scheduled *office hours*, which are Tu and Th, 10:30 am - 12:00 pm for Prof. Mota de Freitas, and Tu and Th, 10:00-11:00 am for Prof. Stefan. Their office locations, telephone numbers, and e-mail addresses are:

Prof. Mota de Freitas, Flanner Hall-125, (773) 508-7045 [dfreita@luc.edu](mailto:dfreita@luc.edu)

Prof. Kanzok, Quinlan (LSB) 427, (773) 508-3790 [skanzok@luc.edu](mailto:skanzok@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 Prof. Kanzok or the Chemistry Departmental Office, (773) 508-3100 for Prof. 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 Prof. Castignetti, the Chairperson of the Biology Department, Prof. Mota de Freitas, the 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 you do not have a high-speed internet connection at home, you may wish to consider using Loyola's computer resources to download the materials.

### **Error Policy**

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