

Chemistry 362
Current Concepts in Biochemistry
Dr. K. W. Olsen
Fall, 2011
Tuesdays and Thursdays 8:30-9:45am
FH-105

Lecture Schedule:

#	Date	Topic
1	Tu 8/30	Introduction - Review of Protein Structure
2	Th 9/1	X-ray Crystallography – methods – Dr. Liu
3	Tu 9/6	X-ray Crystallography – methods – Dr. Liu
4	Th 9/8	X-ray Crystallography – results, the PDB & graphics programs - Topic for 1st presentation due
5	Tu 9/13	X-ray Crystallography – results, the PDB & graphics programs - 1st presentation due
6	Th 9/15	Protein Structure - student presentations & discussion
7	Tu 9/20	Protein Structure - student presentations & discussion
8	Th 9/22	Protein Structure - student presentations & discussion
9	Tu 9/27	Protein Structure - student presentations & discussion
10	Th 9/29	Protein Structure - student presentations & discussion
11	Tu 10/4	Molecular Modeling
12	Th 10/6	Molecular Modeling
	Tu 10/11	Mid-Term Break
13	Th 10/13	Molecular Modeling
14	Tu 10/18	Mid-Term Examination
15	Th 10/20	Conformational Changes & Allosteric Control - 2nd topic due
16	Tu 10/25	Conformational Changes & Allosteric Control - 2nd presentation due
17	Th 10/27	Conformational Changes - student presentations & discussion
18	Tu 11/1	Conformational Changes - student presentations & discussion
19	Th 11/3	Conformational Changes - student presentations & discussion
20	Tu 11/8	Conformational Changes - student presentations & discussion
21	Th 11/10	Conformational Changes - student presentations & discussion
22	Tu 11/15	Signal Transduction & G-proteins - 3rd topic due
23	Th 11/17	Signal Transduction & G-proteins - 3 rd presentation due
24	Tu 11/22	Signal Transduction & G-proteins - student presentations & discussion
	Th 11/24	Thanksgiving
25	Tu 11/29	Signal Transduction & G-proteins - student presentations & discussion
26	Th 12/1	Signal Transduction & G-proteins - student presentations & discussion
27	Tu 12/6	Signal Transduction & G-proteins - student presentations & discussion
28	Th 12/8	Signal Transduction & G-proteins - student presentations & discussion
	Sa 12/17	Final Examination – 9 to 11 am

Major Themes:

The major themes in this course will be the relationship of protein structure to function and control of biochemical activities. We will examine several currently important areas of biochemical research, including protein structure, conformational changes and allosteric control, molecular modeling and signal transduction cascades and G-proteins. The structure of the course will involve introductory lectures by Dr. Olsen (and Dr. Liu on crystallography) for each area followed by student presentations and discussion.

Molecular Modeling:

One section of the course will involve molecular modeling of protein structure. Dr. Olsen will present the basic concepts in the lecture section. Instead of doing presentations on this area the students will create a homology model of a protein and turn in several views done of two graphics programs.

Presentations:

The order of the presenters will be determined by lot. Each student will present two times during the semester. Each presentation will be approximately 15 min long, followed by questions and answers. The speakers will provide Dr. Olsen with the titles of their main reference on the days indicated by "topic due" in the list of lectures given above. They should e-mail him their name and the full reference to their paper and two alternatives (see below) by 4 pm on the day before the topic is due and provide him a copy of the paper on the day it is due. Note: that in case of two or more people picking the same paper, the person with the earliest e-mail will present it and the others will need to find a new paper. Since you will need to have found 3 papers on the topic (see below) you should be ready to pick another one of your papers if necessary. **The emphasis of the selected papers must be molecular structure and function rather than cells and organisms.** An electronic copy of the presentation (usually a ppt file) and a pdf copy of the main literature reference for each presentation must be sent to Dr. Olsen at least two days before the presentation. If you are using Powerpoint please provide the file for the presentation. If you are using another presentation mode, please talk with Dr. Olsen about what you should submit.

Library Assignments:

All of the reading for this course will be from the original literature. Each student will submit a list of 3 recent (2008-2011) papers on each topic on the day of the first student presentation on that topic. Your references should start with the authors' names, the title of the paper, the year it was published, the journal where it published, the volume number and the first and last page numbers. This should be followed by a brief summary of one of these papers. You should summarize the major conclusions of the paper citing at least one piece of evidence to support each conclusion. The summaries must be written in your own words. **The published abstract of the paper should be attached to**

summary. There will be a 25% deduction assessed if the summaries are late.
Presenters can submit a summary of their presentation paper.

Dissussion:

At the end of each student presentation there will be time to discuss the subject. Your comments and questions will normally be based on how the three papers you read are related to the papers presented that day.

Grading:

1 st presentation	20%
2 nd presentation	20%
mid-term examination	15%
molecular modeling	10%
discussion	5%
summaries of papers	10%
final examination	20%

No make-up examinations will be given. In the event of a missed first examination due to a documented medical or family emergency, the score on the final examination, corrected by the ratio of the class averages on the two examinations, will determine the missed examination score.

After each round of student presentations, the presenters must make an appointment with Dr. Olsen to discuss their presentation. We will also talk about your summaries and class discussion at that time.

Instructor:

Dr. Ken Olsen

FH-409

Phone: 508-3121

e-mail: kolsen@luc.edu

Office hours: Tuesday at 10 am or by appointment (e-mail or phone me – be sure that you get a confirmation)

Website: The website will be on Blackboard system. The URL is blackboard.luc.edu.