

Chem 365/465
Proteomics
Dr. Ken Olsen
Spring 2013
Tuesday & Thursday – 5:45- 7:00 pm
LSB 315

#	Day	Date	Topic	Reading
1	Tu	1/15	Protein Structure – background	pp. 108-110
2	Th	1/17	Introduction to Proteomics	1
3	Tu	1/22	Protein Separations	2
4	Th	1/24	Protein Separations	2
5	Tu	1/29	Protein Identification	3
6	Th	1/31	Protein Identification	3
7	Tu	2/5	Protein Quantitation	4
8	Th	2/7	X-Ray Crystallography of Proteins	pp. 111-114
9	Tu	2/12	X-Ray Crystallography of Proteins	pp. 111-114
10	Th	2/14	Molecular graphics – PDB viewer	web refs
11	Tu	2/19	Homology Modeling	5
12	Th	2/21	Model Verification	5
13	Tu	2/26	Structural Proteomics	6
14	Th	2/28	Structural Proteomics	6
	Tu	3/5	Mid-term break – no class	
	Th	3/7	Mid-term break – no class	
15	Tu	3/12	Mid-Term Examination	
16	Th	3/14	Interaction Proteomics	7
17	Tu	3/19	Interaction Proteomics	7
18	Th	3/21	Protein Modifications	8
19	Tu	3/26	Protein Modifications	8
	Th	3/28	Easter – no class	
20	Tu	4/2	Protein Chips	9
21	Th	4/4	Proteomics Applications	10
22	Tu	4/9	Molecular Mechanics	Handout
23	Th	4/11	Energy Minimization	Handout
24	Tu	4/16	Molecular Dynamics	Handout
25	Th	4/18	Student Presentations	
26	Tu	4/23	Student Presentations	
27	Th	4/25	Student Presentations	
	Tu	4/30	Final Exam at 4 :15 pm	

Grading: 25% Mid-Term, 10% Homology modeling project, 10% on MD project, 10% homework, 20% Student Presentation, 25% Final

For the homology modeling project, you must include analyses of your model using Verify 3D. It also must include at least two diagrams showing the model structure by itself and the structure compared to the template(s). You need to demonstrate where the model differs from the template structure.

For the student presentation, you need to select a recent (2010-2013) research paper involving proteomics of oxidative damage. You need to submit a list of 5 potential papers to me no later than Tuesday, 3/26, in order of your preference to present them. I will make sure that there are no duplications. You need to send me a pdf of your paper and copy of your powerpoint presentation a week before you are to present. The presentation schedule will be arranged in early October. The presentations must be 15 – 17 minutes long.

The molecular dynamics assignment will include setting up the files to run an MD simulation and analyzing the data. The data will probably come from simulations already run in my laboratory because we will not have enough time to run them ourselves.

The final exam will include everything covered since the mid-term, including the student presentations.

It should be obvious that all answers on examinations must arise from independent, honest efforts. Nothing less is acceptable at Loyola. Thus, any student found cheating on any quiz will receive an automatic “0” for that examination and his (her) name will be brought to the attention of the Chair of the Department and the Dean of the College, who will decide if further disciplinary action is necessary.

Text: Principles of Proteomics by R. M. Twyman, 2004, Taylor and Francis

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 and lecture material.

Contact: Dr. Ken Olsen
Flanner 409
(50)8-3121
kolsen@luc.edu (e-mail is the best way to get in touch with me)

Office Hours: After class on TuTh evenings or by arrangement.

Blackboard: I plan to use the Blackboard website (blackboard.luc.edu) for all class notes and announcements. Please see the attached handout for instructions on how to use this site. It is essential that you access the site regularly to do well in this class.