

**Syllabus**  
**Proteomics: Protein Structures and Functions in the Context of Biology**  
**395/365/465**  
**Dr. Dali Liu**  
**Fall 2010**  
**Tuesday & Thursday – 5:45- 7:00 pm**  
**LSB 315**

#	Day	Date	Topic
1	Tu	8/31	Genomics to Proteomics
2	Th	9/2	Protein Chemistry Review
3	Tu	9/7	Protein Separations
4	Th	9/9	Protein Identification
5	Tu	9/14	Protein Quantitation
6	Th	9/16	Proteomics and the analysis of Protein Sequences
7	Tu	9/21	Mass Spec principles (Dr. Chiarelli)
8	Th	9/23	Mass Spec in proteomics
9	Tu	9/28	Structural Biology. using Chimera or Pymol
10	Th	9/30	Dagmar Ringe's Talk on Structure Based Drug Design
11	Tu	10/5	X-ray Crystallography
12	Th	10/7	Mid-Term Examination
	<b>Tu</b>	<b>10/12</b>	<b>Mid-Term Break – no class</b>
13	Th	10/14	X-ray Crystallography
14	Tu	10/19	Structural Proteomics (Field Trip)
15	Th	10/21	Structural Proteomics
16	Tu	10/26	Homology Modeling (Dr. Ballicora)
17	Th	10/28	Homology Modeling (Dr. Ballicora)
18	Tu	11/2	Homology Modeling (Dr. Ballicora)
19	Th	11/4	Molecular Dynamics Simulation.
20	Tu	11/9	Interaction Proteomics
21	Th	11/11	Protein Modification in proteomics
22	Tu	11/16	Protein Chips and functional proteomics.
23	Th	11/18	Proteomics Applications
24	Tu	11/23	System Biology
	<b>Th</b>	<b>11/25</b>	<b>Thanksgiving Break – no class</b>
25	Tu	11/30	Student Presentations
26	Th	12/2	Student Presentations
27	Tu	12/7	Student Presentations
28	Th	12/9	Student Presentations
29	Tu	12/14	Student Presentations
30	Th	12/16	Student Presentations
31	Tu	12/21	Final Exam

**Grading:** 30% Mid-Term, 10% Homology modeling project, 10% homework, 20% Student Presentation, 30% Final

For the homology modeling project, you must include analyses of your model using Verify 3D. It also most 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.

A field trip to the Structural Genomic Center will be scheduled at a convenient time in the second half of the semester.

For the student presentation, you need to select a recent research paper involving proteomics as defined by the topics covered in this course. You need to submit a list of 5 potential papers to me no later than Tuesday, 11/9, in order of your preference to present them. The instructor 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 13 – 15 minutes long. The grading will be done by both your classmates (50%) and the instructor (50%) in 3 categories, knowledge, clarity and presentation.

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

**It should be obvious that all answers on examinations must arise from independent, honest efforts. Any student found cheating 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 the instructor will not have time to lecture on every topic but will emphasize what he consider to be the most important topics. But, you are responsible for all of the text and lecture material.

**Contact:** Dr. Dali Liu  
Flanner 422  
(50)8-3093  
[dliu@luc.edu](mailto:dliu@luc.edu)

**Office Hours:** After class on Tu Th evenings or by arrangement.

**Blackboard:** I plan to use the Blackboard website ([blackboard.luc.edu](http://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.**