

Syllabus
Macromolecular X-ray Crystallography
395/465 Spring 2012

Instructor: Dr. Dali Liu,
Department of Chemistry
Email: dliu@luc.edu or dliuluc@gmail.com
Office: FH422
Phone: 773-508-3093

Office Hours: 1:30 PM-3:30 PM, Tu & Th; individual meetings can be arranged via appointments.

Class Meetings: Locations: LSB315 (Lecture) & FH422 (On Hands Training)
Time: Tuesday & Thursday 5:30 PM- 6:50 PM

Objectives: The class will provide both principle understanding and on-hands practice on protein crystallography.

Requirements: No Textbook will be required; the following is the suggested general reading:
Crystallography Made Crystal Clear: 3rd Edition, A Guide to Users of Macromolecular model. By Gale Rhodes
The instructor will provide other course materials as handouts.

For the hands on practice, students should either bring in a laptop or a portable hard drive.

Exams and Assignments: midterm 30%, final (comprehensive) 30%, assorted assignments 40%.

Grading:

Grade Table

Letter	Range (%)
A	90 or more
A-	85-89
B+	80-84
B	75-79
B-	70-74
C+	65-69
C	60--65
D+	55-59
D	50-54
F	Below 50

Please be aware that the C- and D- will not be given as a grade in this class.

Class Schedule:

#	Day	Date	Topic
1	Tu	1/17	Syllabus, Class Issues and Introduction to X-ray Crystallography.
2	Th	1/19	Crystals and Symmetry
3	Tu	1/24	Unit Cells, Point Groups, Space Groups
4	Th	1/26	X-ray Diffraction: Hardware and Diffraction Patterns.
5	Tu	1/31	Crystal Growth, and mounting.
6	Th	2/2	Crystallization screening hands on session.
7	Tu	2/7	Reciprocal Lattice and Fourier Transfer.
8	Th	2/9	Data Collection and Processing
9	Tu	2/14	Phasing
10	Th	2/16	Phasing
11	Tu	2/21	Refinements
12	Th	2/23	Refinements
13	Tu	2/28	Midterm
14	Th	3/1	Data
15	Tu	3/6	<i>No Class Spring Break</i>
16	Th	3/8	<i>No Class Spring Break</i>
17	Tu	3/13	ccp4
18	Th	3/15	ccp4
19	Tu	3/20	coot
20	Th	3/22	pymol & Chimera
21	Tu	3/27	Molecular Dynamics
22	Th	3/29	Molecular Dynamics
23	Tu	4/3	Molecular Dynamics
24	Th	4/5	<i>No Class Easter Holiday</i>
25	Tu	4/10	Optimizations, Crystal retrieval, and preservation
26	Th	4/12	Optimizations, Crystal retrieval, and preservation
27	Tu	4/17	Mechanistic Crystallography and Drug Design
28	Th	4/19	Protein Engineering
29	Tu	4/24	Advance Crystallography Methods
30	Th	4/26	Crystallography artifacts
31	Tu	5/1	<i>No Class</i>
32	Th	5/3	Final

Academic integrity

Academic integrity is essential for the academic life; for that reason, and students are expected to adhere to the highest ethical standards in the course. Anything less, will not be accepted. Dishonest behavior such as cheating may cause to fail an assignment or examination. This *zero* score will not be dropped. A second instance of academic dishonesty may be reported and cause to fail the entire course. In addition, the course will deserve an F if the first instance of dishonesty is severe. Please refer to the official policy of the *College of Arts and Sciences* regarding academic integrity:

http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf

There will be no expiration time for the enforcement of rules against acts of dishonesty. When an act of academic dishonesty is found, rules may be enforced even if the grade of an exam or assignment has already been given.

Syllabus amendments

The syllabus has been thoroughly checked with the goal of avoiding mistakes. However, there is the possibility that unintended inaccuracies exist. In case that the student finds a contradiction or an error, particularly in the dates of the exams or classes, the student should immediately contact the instructor. The instructor of the course reserves the right to revise the syllabus. Amendments will be made in case mistakes are found or if the instructor believes they will improve the learning process for everybody. Amendments, if they ever exist, will be announced in class, by e-mail, or on blackboard.