

Syllabus
Protein X-ray Crystallography 395/465 Fall 2016

Instructor: Dr. Dali Liu,
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Office Hours: 2:00 PM-4:00 PM, Tu; individual meetings can be arranged via appointments.

Class Meetings: Locations: FH105
Time: Tuesday & Thursday 4:15 PM- 5:30 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 40 %, final (comprehensive) 40 %, computational assignments 10%, oral presentation (15 min) 10%

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.

*Details of the assignments and oral presentation will be finalized in classes during semester.

Class Schedule:

#	Day	Date	Topic
1	Tu	8/30	Syllabus, Introduction to Protein Crystallography & Structural Biology.
2	Th	9/1	Crystals and Symmetry Unit Cells, Point Groups, Space Groups
3	Tu	9/6	Sample preparation, Crystallization, and mounting.
4	Th	9/8	X-ray Diffraction: Hardware and Diffraction.
5	Tu	9/13	<i>On hands session, crystallization. (Schedule could change!)</i>
6	Th	9/15	Reciprocal Lattice, Miller Index and Fourier Transfer.
7	Tu	9/20	Data Collection and Processing
8	Th	9/22	Data Collection and Processing
9	Tu	9/27	Phasing
10	Th	9/29	Phasing
11	Tu	10/4	Review
12	Th	10/6	Midterm
	<i>Tu</i>	<i>10/11</i>	<i>No Class Mid-semester Break</i>
13	Th	10/13	Refinement
14	Tu	10/18	Refinement
15	Th	10/20	Structure-solving pathologies
16	Tu	10/25	CCP4, Coot, UCSF Chimera Installation (Computer Required)
17	Th	10/27	CCP4 & Coot (Computer Required)
18	Tu	11/1	CCP4 & Coot (Computer Required)
19	Th	11/3	UCSF Chimera (Computer Required)
20	Tu	11/8	Model Errors, Crystallography artifacts and Structural Interpretation
21	Th	11/10	<i>On hands crystal handling/Data Collection (Schedule could change)</i>
22	Tu	11/15	Mechanistic Crystallography and Drug Design
23	Th	11/17	Advance Crystallography
	<i>Tu</i>	<i>11/22</i>	<i>Thanksgiving</i>
	<i>Th</i>	<i>11/24</i>	<i>Thanksgiving</i>
24	Tu	11/29	Oral Presentations
25	Th	12/1	Oral Presentations
26	Tu	12/6	Oral Presentations
27	Th	12/8	Review
28	Tu	12/13	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

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.