

CHEM 3130-1: Chemical Systems III
(Macromolecular Structure and Dynamics)

Instructor: Dr. Martin Margittai

Office: SGM 253

Phone: 871-4135

E-mail: martin.margittai@du.edu

Class hours: MWF 10:00 am – 10:50 am in Olin Hall 103

Office hours: Tuesdays and Thursdays, 10:00 am -11:00 am.

Objectives: 1) To develop an understanding of the physical properties of biological macromolecules.

2) To comprehend modern methods for analyzing macromolecular structure.

Grading: Exams 1-2 (20% each), final exam (40%), literature discussions (20%).

Text: *Principles of Physical Biochemistry* (2nd ed)
by Van Holde, Johnson, & Ho (2006)

Additional useful books (not required):

Physical Chemistry, Principles and Applications in Biological Sciences
by Tinoco, Sauer, Wang & Puglisi (2002)

Physical Biochemistry: Principles and Applications
by David Sheehan (2000)

Crystallography Made Crystal Clear
by Gale Rhodes (2006)

Biophysical Chemistry I, II, and III
by Cantor & Schimmel (1980)

CHEM 3130-1 Syllabus – Spring 2008

Dates	Topics Covered	Reading Chapters
	Conformation and Behavior of Biological Macromolecules	
03/24/08	Proteins	1
03/26/08	Nucleic Acids	1
03/28/08	Calorimetry	2
03/31/08	Molecular Interactions	3
04/02/08	"	3
04/04/08	Conformational Transitions	4
04/07/08	"	4
	Techniques for the Study of Biological Structure and Function	
04/09/08	Separation and Characterization of Macromolecules	5
04/11/08	"	5
04/14/08	EXAM 1: 03/24/08 - 04/11/08, 10:00 am – 10:50 am	
04/16/08	Spectroscopy/ Electromagnetic Radiation	8
04/18/08	Absorption Spectroscopy	9
04/21/08	CD Spectroscopy	10
04/23/08	"	10
04/25/08	Fluorescence Spectroscopy	11
04/28/08	"	11
04/30/08	"	11
05/02/08	Nuclear Magnetic Resonance Spectroscopy	12
05/05/08	"	12
05/07/08	"	12
05/09/08	EXAM 2: 04/16/08 – 05/07/08, 10:00 am – 10:50 am	
05/12/08	X-ray Crystallography	6
05/14/08	"	6
05/16/08	"	6
05/19/08	Other Scattering and Diffraction Techniques	7
05/21/08	Mass Spectrometry	15
05/23/08	"	15
05/26/08	Single Molecule Methods	16
05/28/08	"	16
05/30/08	MEMORIAL DAY	
06/05/08	EXAM 3: comprehensive, 10:00 am – 11:50 am	