

# CHEM-UA 881 - Biochemistry

Fall, 2016

**Lectures:** Tuesday, Thursday 4:55pm-6:10pm. **Bldg:GCASL Room:C95**

**Recitations:** Sections by registration.

## Textbooks and materials:

1. Jeremy Berg, John Tymoczko, and Lubert Stryer. Biochemistry, 7<sup>th</sup> Edition. W.H. Freeman, 2007. (Note: You may be able to get a copy of the 6<sup>th</sup> Edition used-there is very little difference, except to be annoying).

## Recommended:

Workbook. Richard Gumpert, Frank Deis, and Nancy Gerber. Student Companion. Copies available in bookstore. Depending on your background this can be very helpful or not. So check out a copy before buying one.

*Petsko GA and Ringe D Protein Structure and Function, New Science Press.*

- This primer presents material that we cover with excellent pictures.
- This text is available online via NYU license.

Additional readings will be assigned online.

## Faculty:

Neville R. Kallenbach, Department of Chemistry Room 866 Waverly  
Email: [nrk1@nyu.edu](mailto:nrk1@nyu.edu) - Please title emails BC2016 to be sure you get a response

Rohini Qamra, Department of Chemistry, Silver 1001U  
Email: [rohini.qamra@nyu.edu](mailto:rohini.qamra@nyu.edu)

## Office hours:

NRK – Wednesday – 3:30pm (Waverly – Room 866)

Rohini Qamra – Monday – 11:30am – 1:30pm (Silver 1002A) – unless otherwise posted on NYU Classes

## Office hours (Recitation Instructors):

Please arrange to meet with **your own recitation instructor** for any questions.

Danielle Nalband ([dmn283@nyu.edu](mailto:dmn283@nyu.edu)) – Friday, 5pm – 5:30pm, Location – TBD  
Michael Brady ([mb5469@nyu.edu](mailto:mb5469@nyu.edu)) – Tuesday, 10am – 12pm, Location – 1002B  
Somdeb Mitra ([sm7274@nyu.edu](mailto:sm7274@nyu.edu)) – by appointment only  
Rohini Qamra – Monday – 11:30am – 1:30pm (Silver 1002A) – unless otherwise posted on NYU Classes

1. **General information.** This course presents a one-semester introduction to biochemistry for undergraduates. The course offers an introduction to biological macromolecules, including the structure and function of proteins, nucleic acids, carbohydrates, lipids and membranes, transport, and enzyme mechanisms. Elements of metabolism are presented, as well as a discussion of genetic information, expression and regulation.
2. **Exams:** Your course grade will be determined in part by scores on three in-class examinations, each worth 100 points: Midterm 1, Midterm 2, and a Final. Please be aware that an unexcused absence from any exam results in a score of **zero** for that exam. (Also be sure that your excuses are from NYU student health, explaining specifically what condition prevented you from studying and/or taking the exam.)
3. **Recitation:** An additional 100 points will be awarded for performance in recitation. Please be sure that you have an assigned recitation section.
4. **Class website:** This course is on NYU Classes. Notes, readings, problem sets, study guides, web links and answers to problems will all be posted on NYU Classes. Be sure that you have NYU Classes access.

## CHEMISTRY OF CELLULAR COMPONENTS

LECTURE DATE	TOPIC	READING	RECITATION
Sept. 6 T	Introduction	BTS 1	
Sept. 8 R	Proteins I. Acid base chemistry; Amino acids and polypeptides	BTS 2 PR 1-1	
Sept. 13 T	Proteins II. Isolating proteins. CHASM	BTS 2	Rec. 1
Sept. 15 R	Proteins III Protein structure, stability and folding	BTS 3 PR 1-3, 4, 5,6,7, 8,9,10	
Sept. 20 T	DNA, RNA structure and function	BTS 4	Rec. 2
Sept. 22 R	Genetic information	BTS 4	
Sept. 27 T	Genes and genomes	BTS 5	Rec. 3
Sept. 29 R	Evolution and bioinformatics	BTS 6	
Oct. 4 T	Protein structure and function: Mb and Hb	BTS 7	REVIEW
Oct. 6 R	Enzymes I	BTS 8 PR 2-6,7,8,9	
<b>Oct. 11 T</b>	<b>MIDTERM I</b>		
Oct. 13 R	Enzymes II: Catalysis	BTS 9 PR 2-6, 12, 4-11	
Oct. 18 T	Enzymes II: Regulation	BTS 10 PR 2-8,3-11, 3-12, 3-13	Rec. 4
Oct. 20 R	Enzymes IV: Problems		

## CARBOHYDRATES, MEMBRANES, METABOLISM

Oct. 25 T	Carbohydrates	BTS 11	Rec. 5
Oct. 27 R	Lipids and membranes	BTS 12	
Nov. 1 T	Channels and pumps	BTS 13	Rec. 6
Nov. 3 R	Signal transduction	BTS 14	
Nov. 8 T	Metabolism: basic concepts	BTS 15	REVIEW
Nov. 10 R	Glycolysis	BTS 16	
<b>Nov. 15 T</b>	<b>MIDTERM EXAM II</b>		

Nov. 17 R	Gluconeogenesis	BTS 16	
Nov.22 T	TCA Cycle; Oxidative phosphorylation	BTS 17,18	Rec. 7
Nov.24 R	THANKSGIVING BREAK		
Nov. 29 T	DNA replication and repair	BTS 28	Rec. 8
Dec. 1 R	RNA transcription and processing	BTS 29	
Dec. 6 T	Protein synthesis	BTS 30	Rec. 9
Dec. 8 R	Control of gene expression in prokaryotes	BTS 32	
Dec. 13 T	Chemical biology I	BTS 32	REVIEW
Dec.15 R	Chemical biology II	BTS 32	
<b>DEC. 20 T</b>	<b>FINAL EXAM (6pm-7:50pm)</b>		