

## 2007-2008 Graduate Biochemistry course schedule

### COURSE DIRECTORS:

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### Course Description And Credits:

**BCO 520** (fall quarter) and **BCO522** (winter quarter), **three quarter hours per course:** This course is comprised of a series of lectures on topics in biochemistry, offered through the Biochemistry Department. Classes for this course be 1½ hours long and will meet on **Mondays, Thursdays or Fridays from 3:30 – 5:00 PM** (see attached schedule).

**BCO 521** (fall quarter) and **523** (winter quarter), **two quarter hours per course:** This supplement course offered through the Biochemistry Department in conjunction with the above mentioned lecture course, will provide students with the opportunity to explore the topics covered in the lecture series in greater depth. At the discretion of the lecturers, activities including problem-solving sessions and discussions of papers from the primary literature will be assigned. The BCO521 and BCO523 courses run concurrently with the lecture courses, BCO520 and BCO522 respectively. Classes for this course will be **2 hours** long and will meet on **Mondays, Thursdays or Fridays from 3.00-5.00pm** (see attached schedule).

### OBJECTIVES:

The objective of the lecture course (BCO520/522) is to enable the graduate students to gain an understanding of the basic concepts of biochemistry which is essential for their research career in any area of biology. These graduate level courses assume a background in chemistry and biology.

The supplemental course (BCO521/523) is designed to bridge the gap between learning the concepts from the text book and using that knowledge in research. Some of the topics covered in the lecture course will be discussed at a greater detail so that the students will get a better understanding of the concepts and will also have an opportunity to get familiarized with the experimental strategies/approaches of biochemistry used in biomedical research.

### TEXTS:

The required text is: **Biochemistry, 6<sup>th</sup> Edition – Jeremy M. Berg, John L. Tymoczko, and Lubert Stryer**; W. H. Freeman and Company, New York.

Instructors may also make reading assignments from the primary literature.

Supplemental Materials including a Lecture Notebook and Student Companion may be useful. (See [www.whfreeman.com/biochem6](http://www.whfreeman.com/biochem6)).

### EXAMS:

**BCO520/522-** Student performance will be evaluated based on two section examinations to be administered in class according to the attached schedule. Each exam will be for **2 hours**.

**BCO521/523** – Student performance will be based on a single Take-home Exam. Near the end of each quarter, the exam will be distributed and will be due about a week after that.

**Legend for course schedule:**

Classes for lecture course (BCO520 and BCO522)
Classes for supplement course (BCO521 and BCO523)
<b>Exams</b>
Holidays

<b>Fall quarter</b>		
<b>BCO520 (Lecture course) and BCO522 (Supplement course)</b>		
<b>Chapter 1: Biochemistry: An Evolving Science</b>		
<b>Chapter 2: Protein Composition and Structure</b>		
<b>Chapter 3: Exploring Proteins and Proteomes</b>		
Aug 20, 2007	<b>Dr. Grahame</b>	Lect Room
Aug 23, 2007		Lect Room
Aug 24, 2007		Lect Room
Aug 27, 2007		Lect Room
<b>Chapter 4: DNA, RNA and the Flow of Genetic Information</b>		
<b>Chapter 5: Exploring Genes and Genomes</b>		
<b>Chapter 6: Exploring Evolution and Bioinformatics</b>		
Aug 30 (will be >90 min)	<b>Dr. Harmon</b>	
Aug 31	No class due to schedule conflict for Dr. Harmon	
Sept. 3	Labor day	
Sept 6 (Chapters 8 & 9)	<b>Dr. Maynard</b>	
<b>Chapter 7: Hemoglobin: Portrait of a Protein in Action</b>		
Sept 7	<b>Dr. Xiang</b>	
Sept 10		
<b>Chapter 8: Enzymes: Basic Concepts and Kinetics</b>		
<b>Chapter 9: Catalytic Strategies</b>		
Sept 13	<b>Dr. Maynard</b>	
Sept 14		
Sept 17		
Sept 20 (Chapters 4, 5 & 6)	<b>Dr. Harmon</b>	
Sept 21	<b>Dr. Maynard</b>	
Sept 24		
<b>Chapter 10: Regulatory Strategies</b>		
Sept 27	<b>Dr. Xiang</b>	
Sept 28		
<b>Oct 1</b>	<b>BCO520 Mid-term exam (Chapters 1 to 10)</b>	
<b>Chapter 11: Carbohydrates</b>		
Oct 4	<b>Dr. Roseman</b>	
Oct 5		
Oct 8 Columbus day		
<b>Chapter 12: Lipids and Cell membranes</b>		
<b>Chapter 13: Membrane Channels and Pumps</b>		
Oct 11	<b>Dr. Dey</b>	
Oct 12		
Oct 15		
Oct 18		
Oct 19		
Oct 22		

<b>Chapter 14: Signal-Transduction Pathways</b>		
Oct 25	<b>Dr. Horowitz</b>	
<b>Chapter 15: Metabolism: Basic Concepts and Design</b>		
<b>Chapter 16: Glycolysis and Gluconeogenesis</b>		
<b>Chapter 17: The Citric Acid Cycle</b>		
Oct 26	No class due to scheduling conflicts with Med biochem course	
Oct 29	<b>Roseman</b>	
Nov 1		
Nov 2		
Nov 5		
Nov 8		
<b>Nov 9</b>	<b>BCO520 final exam (Chapters 1 to 17)</b>	
Nov 12	Veterans Day	
<b>Winter quarter</b> <b>BCO522 (Lecture course) and BCO523 (Supplement course)</b>		
<b>Chapter 18: Oxidative Phosphorylation</b>		
Nov 15	<b>Dr. Grahame</b>	
<b>Chapter 20: The Calvin Cycle and the Pentose Phosphate Pathway</b>		
<b>Chapter 21: Glycogen Metabolism</b>		
<b>Chapter 22: Fatty Acid Metabolism</b>		
<b>Chapter 23: Protein Turnover and Amino Acid Catabolism</b>		
<b>Chapter 24: Biosynthesis of Aminoacids</b>		
Nov 16	<b>Dr. Roseman</b>	
Nov 19		
Nov 22 to Nov 25		Thanks giving Recess
Nov 26		
Nov 29		
Nov 30		
Dec 3		
Dec 6		
Dec 7		
Dec 10		
<b>Chapter 25: Nucleotide Biosynthesis</b>		
Dec 13	<b>Dr. Grahame</b>	
Dec 14		
Dec 17		
<b>Chapter 26: Biosynthesis of Membrane Lipids and Steroids</b>		
Dec 20	<b>Dr. Petukhova</b>	
Dec 21		
Dec 22 to Jan 6		Winter recess
Jan 7		
<b>Jan 10</b>	<b>BCO522 Mid-term exam (Chapters 18 to 26)</b>	
<b>Chapter 27: Integration of Metabolism</b>		
Jan 11	<b>Dr. Roseman</b>	
Jan 14		
Jan 17		
<b>Chapter 28: DNA replication, Repair and Recombination</b>		
Jan 18	<b>Dr.Sundaresan</b>	
Jan 21		Martin Luther King Day
Jan 24		
Jan 25		

<b>Chapter 29: RNA synthesis and Processing</b>		
<b>Chapter 30: Protein Synthesis</b>		
Jan 28	<b>Dr. Horowitz</b>	
Jan 31		
Feb 1		
Feb 4		
Feb 7		
Feb 8		
<b>Feb 11</b>		<b>BCO522 final exam</b>