

**Biomolecular Chemistry 314 - Summer 2014**  
**Introduction to Human Biochemistry**  
 University of Wisconsin-Madison

Lectures: 9:00-10:30 a.m. Mon., Tues., Wed., Thurs.; Rm. 1120 Biochemistry  
 Discussions: 10:35-11:30 a.m. Mondays and Thursdays; Rm. 1220A Biochemical Sciences

**Instructors:** Dr. Michael Sheets and Dr. Tom L. Neal

<u>Date</u>	<u>Day</u>	<u>Lecture</u>	<u>Subject</u>
6/16	M	1 - Neal	Introduction; Cells, Atoms, Chemical Bonds, Molecules
6/17	T	2 - Neal	Water and biological molecules; molecular attractions
6/18	W	3 - Neal	pH and Buffers; peptide bonds and proteins
6/19	Th	4 - Neal	Protein structure; membranes
6/23	M	5 - Neal	<b>(Homework #1 on lectures 1-4 due)</b> Myoglobin, Hemoglobin, and Other Binding Proteins
6/24	T	6 - Neal	<b>(Quiz #1 on lectures 1-4)</b> Enzymes
6/25	W	7 - Neal	Enzymes (continued); Blood clotting cascade
6/26	Th	8 - Neal	Bio-energetics; coupled reactions
6/30	M	9 - Neal	<b>(Homework #2 on lectures 5-8 due)</b> Digestion, Absorption, and Nutrition; Overview of Metabolism
7/1	T	10 - Neal	<b>(Quiz #2 on lectures 5-8)</b> Glycolysis
7/2	W	11 - Neal	Fates of Pyruvate; the Citric Acid (TCA) Cycle
7/3	Th		No lecture - Rest Day! Happy July 4 <sup>th</sup> !
7/7	M	12 - Neal	<b>(Homework #3 on lectures 9-11 due)</b> Regulation of the Citric Acid (TCA) Cycle; Electron Transport
7/8	T	13 - Neal	<b>(Quiz #3 on lectures 9-11)</b> Oxidative Phosphorylation; Glycogen Metabolism
7/9	W	14 - Neal	Regulation of Glycogen Metabolism; Overview of Fasted State; Fat Catabolism
7/10	Th	15 - Neal	Fat Catabolism (continued); Gluconeogenesis
7/14	M	16 - Neal	<b>(Homework #4 on lectures 12-15 due)</b> Gluconeogenesis (continued); Amino Acid Metabolism
7/15	T	17 - Neal	<b>(Quiz #4 on lectures 12-15)</b> Amino Acid Metabolism (continued); Overview of the "Fed State"; Fat Synthesis
7/16	W	18 - Neal	Fat Synthesis (continued); Hormonal Regulation of Metabolism

7/17	Th	19 - Neal	Integration of Metabolism; Metabolic Diseases	
7/21	M	20 - Neal	<b>(Homework #5 on lectures 16-19 due)</b> Cholesterol	
7/22	T	21 - Neal	<b>(Quiz #5 on lectures 16-19)</b> DNA, genomes and chromosomes	
7/23	W	22 - Neal	DNA Replication	
7/24	Th	23 - Neal	RNA and fundamentals of transcription	
7/28	M	24 - Sheets	<b>(Homework #6 on lectures 20-23 due)</b> Protein Synthesis; the Genetic Code	
7/29	T	25 - Sheets	<b>(Quiz #6 on lectures 20-23)</b> Genetic regulation - bacteria	
7/30	W	26 - Sheets	Genetic regulation - eukaryotic cells	
7/31	Th	27 - Sheets	Eukaryotic mRNA processing	
8/4	M	28 - Sheets	<b>(Homework #7 on lectures 24-27 due)</b> DNA Repair	
8/5	T	29 - Sheets	Mutation and Genetic Disease	
8/6	W		Discussion and Review of Course <b>(Homework #8 on lectures 28 and 29 due)</b> <b>(Quiz #7 on lectures 24-28)</b>	
8/7	Th		<b>(Final Exam)</b>	9:00 – 11:00