

MUSC College of Graduate Studies
Fundamentals of Biomedical Chemistry, Cellular and Molecular Biology
July 14-Aug 8, 2008

Course Director: Besim Ogretmen, Ph.D.

Unit 1. Medical Chemistry

Unit Leader: Craig Beeson, Ph.D.

beesonc@musc.edu, QF309C, 876-5091

Teaching Assistant: Rene' Eslick

Date	Day	Time	Topic	TA/Instructor
July 14	M	9:30-11:30	Covalent bonding and molecular Shape Resonance	Eslick
July 15	T	9:30-11:30	Alkanes/Cycloalkanes Alkenes	Eslick
July 16	W	9:30-11:30	Aromatics Acid/base reactions	Eslick
July 17	Th	9:30-11:30	Nucleophilic substitutions Introduction to mechanisms	Eslick
July 18	F	9:30-11:30	Discussions Problem Solving (Homework assignments)	Eslick

Study Aides available on the web:

http://members.aol.com/profchm/acid_str.html

<http://www.chemguide.co.uk/basicorg/bondmenu.html#top>

<http://www.chemguide.co.uk/basicorg/isomermenu.html#top>

<http://www.chemguide.co.uk/basicorg/acidmenu.html#top>

<http://wb.chem.lsu.edu/htdocs/people/sfwatkins/MERLOT/drawlewis/dls.html>

<http://www.stolaf.edu/depts/chemistry/courses/toolkits/125/js/lewis/>

http://web.chem.ucla.edu/~harding/tutorials/resonance/draw_res_str.html

http://www.usm.maine.edu/~newton/Chy251_253/Lectures/Polarity/PolarityFS.html

<http://courses.chem.psu.edu/chem38/mol-gallery/hybridization/hybrids.html>

<http://www.yk.psu.edu/~jhb3/cotw08.htm>

A really great tutorial site:

<http://www.ochem.com/>

Unit 2. Nucleic Acids

Unit Leader: Besim Ogretmen, Ph.D.

ogretmen@musc.edu, BSB 518E, 792-0940

Date	Day	Time	Topic	Instructor
July 21	M	9:30-10:30	DNA, RNA and the Flow of Genetic Information	Cowart
July 21	M	10:30-11:30	Basic Tools of Gene Exploration	Cowart
July 22	T	9:30-11:30	DNA Replication, Recombination and Repair	Cowart
July 23	W	9:30-11:30	RNA Synthesis and Splicing	Ogretmen
July 24	Th	9:30-11:30	The control of gene expression Protein Synthesis	Ogretmen
July 25	F	9:30-10:30	Protein Synthesis	Ogretmen
July 25	F	10:30-11:30	Special Seminar: Identification of Ribosome Structure	Hansen

Text Book: Biochemistry (5th edition), Berg, Tymoczko, Stryer, W.H. Freeman and Company, New York, NY, Chapters 5, 6, 27, 28, 29, and 31.

Unit 3. Proteins

Unit Leader: Yi-Te Hsu, Ph.D.

hsuy@musc.edu, BSB 512C, 792-0849

Instructors:

Chris Davis, Ph.D. (davies@musc.edu, BSB 518D, 792-1468)

Yi-Te Hsu, Ph.D. (hsuy@musc.edu, BSB 512C, 792-0849)

Sergey Krupenko, Ph.D. (krupenko@musc.edu, BSB 512B, 792-0845)

Date	Day	Time	Topic	Instructor
July 28	M	9:30-11:30	Principles of Protein Structure: Amino Acids, Peptides and Proteins	TBA
July 29	T	9:30-11:30	How Structure Dictates Function – Green Fluorescent Protein	TBA
July 30	W	9:30-11:30	Use of Protein Chemical and Physical Properties for Analytical Purposes	Hsu
July 31	Th	9:30-10:30	Introductory Thermodynamics	TBA
July 31	Th	10:30-11:30	Reaction Equilibria and Enzyme Kinetics	Hsu
Aug 1	F	9:30-11:30	Paper presentations (Assignments)	Hsu

Unit 4. Cell Biology

Unit Leader: Ed Krug, Ph.D.

krugel@musc.edu, CRI 607, 792-1543

Instructors:

Hiroko Hama, Ph.D. (hama@musc.edu, BSB 518C, 792-6949)

David Kurtz, Ph.D. (kurtzdt@musc.edu, BSB 321, 792-5844)

Steven Rosenzweig, Ph.D. (rosenzsa@musc.edu, BSB 318, 792-5841)

Daynna Wolff, Ph.D. (wolffd@musc.edu, Children's Hospital EH222D, 792-3574)

Cynthia Wright, Ph.D. (wrightcf@musc.edu), BSB 102, 792-2564)

Date	Day	Time	Topic	Instructor
Aug 4	M	9:30-10:30	Cellular Compartmentalization	Hama
Aug 4	M	10:30-11:30	Cytoskeleton and Extracellular Matrix	Krug
Aug 5	T	9:30-10:30	Sorting and Secretion	Hama
Aug 5	T	10:30-11:30	Cell Adhesion and Cell Motility	Krug
Aug 6	W	9:30-10:30	Cell Signaling	Rosenzweig
Aug 6	W	10:30-11:30	Cell Cycle	Wright
Aug 7	Th	9:30-10:30	Cell Differentiation	Visconti
Aug 7	Th	10:30-11:30	Genetic Basis of Disease	Wolff
Aug 8	F	9:30-10:30	Experimental Methodologies	Krug
Aug 8	F	10:30-11:30	Review of Core Curriculum Exam Questions	Krug

Text Book: The Cell: A Molecular Approach. G. M. Cooper, Sinauer Assoc., Inc. Sunderland, MA.