

CHEMISTRY 1052/1062: CHEMISTRY FOR THE HEALTH PROFESSIONS

Winter 2010

T, R 8:00 -9:50 AM

Instructor: James Chickos

Office: B435 Benton Hall

Office Hours: TR 10:00 - 11:00 am or by appointment

E-mail: JSC@UMSL.EDU, **Phone:** (314) 516-5377; web site: www.umsl.edu/~chickosj/

Text: *General, Organic, and Biological Chemistry, Structure of Life* K. C. Timberlake 3rd Edition

General Remarks: Chemistry 1052 (and 1062) is an introductory chemistry course for students in nursing and health related fields. This course is intended to provide nurses with a descriptive background in general, organic and biochemistry so that other courses taken such as, nutrition and pharmacology, can be appreciated on a molecular level. The first part of the course will focus on fundamentals of general chemistry dealing with the nature of atoms, atomic structure, bonding and role of nuclear chemistry in medicine. The 2nd half of the course will focus on the structure and nomenclature of organic and biomolecules and their role in health related systems. There are no prerequisites for Chem1052; any college chemistry course will satisfy the prerequisites for chem1062. Familiarity with algebra is needed to solve problems in the course. The following are some suggestions that may help you in this course.

- Study the subject matter in chemistry as you would a foreign language and your difficulty with the subject matter will be significantly reduced.
- Try and read the material in the text before coming to class; work out the problems that are suggested; keep track of what you don't understand and ask questions, either in or out of class. A significant number of problems on each examination will be taken directly from or will be closely related to the suggested problems and the material covered in class.
- Although attendance is not mandatory, it is strongly advised that you to attend all the lectures. Atomic and molecular structure exists in three dimensions. If you have difficulty in visualizing their structure, a set of molecular models may prove to be very useful. Come see me and I will suggest some web sites that may be useful to you in visualizing three dimensional structures.

E-mail: I encourage you to contact me or correspond with me by e-mail. I am available almost all the time by e-mail If you do not hear back from me, this may mean that your message is lost in cyberspace. Resubmit the e-mail. If this problem persists, please contact me.

GRADING: Your grade in this class will be based on four exams each worth 200 points (Total 800 points). Letter grades are primarily assigned on a curve. Therefore, the exact number of points or percentage required for each of the various letter grades will not be known until the end of the course.

Exams: There will be four examinations during the semester. Since some student may only register for Chem 1062, there is no final exam for the course. Two exams will cover Chem 1052 and two will cover Chem 1062. Although the exams will cover different chapters, chemistry as a course is cumulative so that it is important to understand the preceding material. As a rule, you will be required to take the exam when it is scheduled ***Make-up exams will not be offered.*** Un-excused absences will result in a grade of zero for the missed exam. Under extreme medical emergencies (with a note from your physician), you may be able to use an exam grade earned later in course for the exam that was missed. According to University regulations, students found to be cheating during an examination will receive a zero for the exam in question and the incident will be reported to the appropriate authority.

All the lecture slides will be posted on the web at the site listed above and you will be able to download them prior to lecture. However, some changes may be added prior to the lecture so be sure to check the version of the web after the lecture as well.

Tentative Schedule of Lecture Material

<i>Date</i>	<i>Chapter</i>	<i>Questions and Problems</i>
Jan. 19	Chapter 1: Measurements	1.5, 1.7, 1.9, 1.15, 1.29, 1.39, 1.59, 1.65, 1.97
Jan. 21	Chapter 2: Energy and Matter	2.3, 2.11, 2.17, 2.27, 2.31, 2.37, 2.51 (d)
Jan. 26, 28	Chapter 3: Atoms and Elements	3.1, 3.31, 3.33, 3.41, 3.49, 3.65, 3.85, 3.87
Feb. 2	Chapter 4: Nuclear Chemistry	4.13, 4.15, 4.17, 4.31, 4.33, 4.35, 4.41, 4.51, 4.63
Feb. 4	Chapter 5: Compounds and Their Bonds	5.1, 5.11, 5.13, 5.15, 5.17, 5.33, 5.43, 5.67
Feb. 9	Chapter 5: Compounds and Their Bonds	5.89, 5.103, 5.107, 5.121
Feb. 11	Exam 1 Material in Chapters 1-5	
Feb. 16	Chapter 6: Chemical Reactions and Quantities	6.1, 6.3, 6.15, 6.17, 6.27, 6.31, 6.35, 6.73, 6.75, 6.99
Feb. 18	Chapter 7: Gases	7.13, 7.19, 7.23, 7.35, 7.51, 7.53, 7.69, 7.71, 7.83
Feb. 23	Chapter 8: Solutions	8.11, 8.19, 8.25, 8.35, 8.43, 8.47, 8.51, 8.67, 8.69, 8.79
Feb. 25	Chapter 9: Chemical Equilibrium	9.11, 9.17, 9.21, 9.29, 9.41, 9.43, 9.45, 9.51
Mar. 2	Chapter 10: Acids and Bases	10.29, 10.33, 10.43, 10.51, 10.79, 10.87
Mar. 4	Catch up and Review	
Mar. 9	Exam 2 Material in Chapters 6-10	
Continuation of Chem 1052; beginning of Chem 1062		
Mar. 11	Chapter 11: Introduction to Organic Chemistry: Alkanes	11.11, 11.15, 11.21, 11.27, 11.33, 11.51, 11.53
Mar. 16	Chapter 12: Alkenes, Alkynes, and Aromatic Compounds	12.5, 12.9, 12.11, 12.21, 12.27, 12.41, 12.45,
Mar. 18	Chapter 13: Alcohols, Phenols, Thiols, and Ethers	13.3, 13.5, 13.7, 13.9, 13.15, 13.43, 13.45, 13.59, 13.61
Mar. 23	Chapter 14: Aldehydes, Ketones and Chiral Molecules	14.3, 14.5, 14.9, 14.11, 14.29, 14.33, 14.35, 14.39, 14.43, 14.47, 14.55, 14.57, 14.55, 14.71
Mar. 25	Chapter 15 Carbohydrates	15.9, 15.13, 15.31, 15.33, 15.41, 15.49, 15.53
Apr. 8	Exam 3 Material in Chapters 11-14	
Apr. 15	Chapter 16 Carboxylic Acids and Esters	16.5, 16.7, 16.11, 16.21, 16.25, 16.29, 16.43, 16.57
Apr. 20	Chapter 17 Lipids	17.13, 17.21, 17.25, 17.37, 17.49, 17.51, 17.57, 17.65, 17.69, 17.87, 19.71
Apr. 22	Chapter 18 Amines and Amides	18.7; 18.11; 18.23; 18.33; 18.37; 18.47; 18.53;
Apr. 27	Chapter 19: Amino Acids and Proteins	19.17; 19.19; 19.23; 19.33; 19.35; 19.37; 19.41; 19.45;
Apr. 29	Chapter 20: Enzymes and Vitamins	20.1; 20.11; 20.15; 20.19; 20.21; 20.25; 20.27; 20.49; 20.55; 20.65;
May 4.	Chapter 21 Nucleic Acids and Protein Synthesis	21.5; 21.11; 21.39; 21.47; 1.89
May 6	Exam 4 Material in Chapters 16-21;	

Answers to the problems are given in the text following each chapter. Before you look up the answer, it is advisable to work the problem out. It is advisable to work out more problems than suggested if you don't feel very comfortable with the material.