UNIVERSITY OF LOUISIANA AT LAFAYETTE
FALL, 2008

Chemistry 231 - Organic I
MWF 8-8:50 AM- MY 103

Instructor: Dr. A. Gallo, Office MY 203; Lab: 235/246
gallo@louisiana.edu
Office hours: M, W, F 11:00-12:00
T 10-11:30 & 1:00 - 3:00 p.m.
R 10-11:30 & 2:00 - 3:30 p.m.
F – 1:00 - 2:00 p.m., and by appointment

Texts: Organic Chemistry – by Janice Gorzynski Smith, 2nd Ed.
McGraw Hill, 2008
Supplemental: (1) Student Study Guide/Solutions Manual by Janice G. Smith and Erin R. Smith
(2) Organic Learning Center: www.smithorganic.com
(3) Organic Chemistry Study Cards by DeGraff,DeGraff and Prince, Morton Publishing Co.

Attendance: You are encouraged to attend all lectures. Attendance is mandatory on examination days. Weekly attendance is taken.

General: Organic chemistry is a fascinating science that touches our lives almost everyday from the food we eat, the clothes we wear and the medicine we may take. Organic chemistry as a course also evokes horror stories as a difficult and feared subject. Your author tries to use a student-friendly approach that illustrates chemical phenomena with illustrations, problem solving and summaries at its core. I will follow your author and I will also use a mechanistic approach to help you learn organic chemistry. We will also learn how structure and reactivity of organic molecules are related and how to formulate an organic synthesis. It is my hope to stimulate your interest in the subject matter as you learn organic chemistry. In order to accomplish this, I need your help! We are going to cover 11 chapters (425 pages) so it is imperative that you **pre-read** the chapter sections before the lecture, study your notes and the book, and work as many problems as you can. Keep up with the material and try not to get behind. If you do not understand something, ask for help from me during office hours or a tutor. Remember our help is free. It is important that you understand fundamental principles and be able to apply them to solving problems. Don't try to memorize everything – just the basic rules or structures necessary. Please try to study for this course at least 1 hr. every day and then more intensely nearer to the exam.

Grading: There will be 3 one-hour exams and one(comprehensive)final exam. Each exam is worth 100 pts. And the final is worth 100 or 200 pts., whichever amount helps your overall grade. I do not drop any exam grades. If you miss an exam, see me upon returning to school and we will decide what to do about the missed exam. Periodic class assignments or quizzes will be given and checked. This class is under a strict honor code and anyone caught giving or receiving information during an exam will be penalized with a grade of F.

* Standard scale as follows:

A - 90 - 100%
B - 80 - 89%
C - 70 - 79%
D - 60 - 69%
F - Below 59%

*Depending upon the class average a slight adjustment may be necessary. This adjustment is usually not more than 2%.

EMERGENCY EVACUATION

A map of this floor is posted near the elevator marking the evacuation route and the Designated Rescue Area. This is an area where emergency service personnel will go first to look for individuals who need assistance in exiting the building. Students who may need assistance should identify themselves to the teaching faculty.

Fall, 2008 Tentative Schedule

August 25..... Introduction

August 27,29,Sept.3, 5.....Chapter 1

Sept.8,10 .....Chapter 2

Sept. 12,15 .....Chapter 3

Sept. 17, 19, 22, 24.....Chapter 4

Sept. 26 and Oct.1,6,8.....Chapter 5

*** September 29 ***.....Exam 1

October 10,13,15.....Chapter 6

October 17,20,22 24.....Chapter 7

Octber 27,29 and Nov 3,5.....Chapter 8

*** October 31 *** .....Exam 2

November 7,10,12,14.....Chapter 9

November17,24,26,28.....Chapter 10

*** Nov. 19 *** .....Exam 3

December 1,3 5.....Chapter 11

*****Tuesday, December 9, 8:00-10:30 a.m.-COMPREHENSIVE FINAL EXAM**

Chemistry 231-
Topics covered using Organic Chemistry, 2nd edition by Janice Gorzynski Smith

Chapter 1: Structure and Bonding
Lewis structures, resonance, hybridization, drawing organic structures,
Molecular shape/geometry and polarity.

Chapter 2: Acids and Bases
Bronsted-Lowry Theory, Pka and acidity, predicting acid-base eqilibria,
Factors affecting acid strength, Lewis acid-base theory.

Chapter 3: Functional groups and Intermolecular forces

Chapter 4: Alkanes and Cycloalkanes
Nomenclature- common and IUPAC
Conformational analysis
Cyclohexane and substituted cyclohexane conformation
Oxidations of hydrocarbons

Chapter 5: Stereochemistry
Chirality and stereogenic centers
Enantiomers and Diastereomers
R and S configurations in chiral compounds
Disubstituted cyclohexanes
Racemates and resolutions

Chapter 6: Organic reactions and thermodynamics
Types of organic reactions
Bond dissociations
Enthalpy and entropy
Energy diagrams, catalysis and kinetics

Chapter 7: Alkyl halides and Nucleophilic Substitution reactions
Alkyl halide properties and nomenclature
Comprehensive theory and examples of SN1 and SN2 mechanisms
Carbocation stability; Hammond Postulate

Chapter 8: Elimination Reactions
General features of elimination
Comprehensive theory and examples of E1 and E2 mechanisms
Stereochemistry of elimination reactions
Alkene stability and Saytzeff's rule
Competition between substitution and elimination
Determining whether a reaction is undergoing SN1, SN2, E1 and/or E2 pathways

Chapter 9: Alcohols, Ethers and Epoxides
Structure, bonding and nomenclature
Preparation and reactions
Dehydration mechanisms
Carbocation rearrangements
Conversion of alcohols to alkyl halides
Reactions of ethers and ring opening reactions of epoxides

Chapter 10: Alkenes
Structure, bonding. properties and nomenclature
Degrees of unsaturation
Synthesis of alkenes

Comprehensive theory of Electrophilic addition reactions
HX , water, X2, X2 and water and hydroboration/oxidation additions
Markovnikov's rule
Stereochemical outcomes of addition reactions
Organic synthesis

Chapter 11: Alkynes
Properties and nomenclature
Preparation reactions of alkynes
Addition reactions
Enol tautomerization
Acetylide ion formation
Synthesis