Organic Chemistry II Syllabus
Chemistry 322
University of Alaska Fairbanks
Spring 2012

Course Information
Chemistry F322, Organic Chemistry II, 3.0 Credits
Reichardt 201A, MWF 11:45-12:45pm
Prerequisite: Chem 321, Organic Chemistry I, with grade of C or better.

Instructor
Thomas Green, Professor of Chemistry
Reichardt 174, Phone: 474-1559, Email: tkgreen@alaska.edu
Office Hours: Tues 1-4 pm, Thurs 2-5 pm.
Website: http://www.uaf.edu/chem/faculty/tgreen/tgreen.htm

Course Materials
Clickers for in-class assessment.

Recommended:
ACS Organic Chemistry Study Guide

Course Description
This course will focus on the theory of organic chemistry (or chemistry of molecules containing carbon) from the viewpoint of structure/reactivity relationships. Topics covered will be bonding, functionality, reactivity, synthesis, spectroscopy, nomenclature, and computer modeling. Homework and Exams will constitute the majority of the points earned in class, with some computer modeling using the Department's HyperChem software.

Course Goals
1. Know reaction chemistry of major functional groups of organic molecules (molecules with carbon).
2. Know how to interpret spectra of organic molecules.
3. Know how to write mechanisms for organic reactions.
4. Know how to build and interpret molecules/reactions using computer modeling techniques.
5. Know how to write organic reactions in a logical sequence to demonstrate how a molecule might be synthesized in the laboratory.
Student Learning Outcomes

At the end of this course, students should be proficient in:

1. Understand fundamental concepts of bonding in organic functional groups.
2. Know how to name simple organic compounds.
3. Be able to predict the reactivity of aromatic compounds, alcohols, phenols, aldehydes, ketones, carboxylic acids and their derivatives, and amines.
4. Be able to confidently interpret the IR, Mass, NMR spectra of simple organic compounds in order to arrive at a structure.
5. Understand the basic concepts of stereochemistry and apply it to reaction chemistry.
6. Be able to predict and write mechanisms of reactions based on fundamental concepts of acid/base chemistry (nucleophiles and electrophiles).
7. Know how to build and optimize organic molecules using molecular modeling program (i.e. Hyperchem).
8. Know the fundamental structures of biological molecules such as carbohydrates, amino acids, proteins, and lipids.
9. Know how to write out synthetic pathways using the correct order of reactants and reagents in order to arrive at a target molecule.

Instructional Methods

1. The instructor will lecture on the theoretical aspects of organic chemistry, using a combination of Power Point slides and Chalkboard, providing copies of notes to the students via the web.
2. Computer modeling assignments will be given on a timely basis in order to reinforce concepts in lecture.
3. Selected Online Web Learning (OWL) assignments relevant to the course material will also required.

Lecture Schedule and Coverage

Jan 20 - Feb 3; Chapters 16,17
Feb 8 – Feb 20; Chapters 18,19
Feb 24; Mar 2; Chapters 20,21
Mar 7 – Mar 26; Chapters 22, 23
Mar 30 – Apr 11; Chapters 24, 25
Apr 16 – Apr 27; Selected Topics Chapters 26-28
May 2,4 – Review
Evaluation

1. Exams (6 @ 100 pts = 600 pts). The lowest exam grade of Exams 1-6 will be dropped. The Final Exam grade will not be dropped.

   Exam 1, Feb 6 (Mon); Chapters 16, 17
   Exam 2, Feb 22 (Wed); Chapters 18, 19
   Exam 3, Mar 5 (Mon); Chapters 20, 21
   Exam 4, Mar 28 (Wed); Chapters 22, 23,
   Exam 5, Apr 13 (Fri); Chapters 24, 25
   Exam 6, Apr 30 (Mon), Selected Topics Chapters 26-28
   Final, May 9 (Wed), Comprehensive Final 10:15am - 12:15pm
      American Chemical Society Exam Covers both
      Organic Chem I and Organic Chem II.

2. Homework (225 pts)

   OWL (150 pts) - See OWL Link on the Blackboard. Due dates are indicated within the OWL website.

   HyperChem Molecular Modeling Assignments (75 pts)
   3 @ 25 pts = 75 pts
   See Blackboard for Specific Assignments and due dates

3. Participation (50 pts). Participation in class is expected. Audience Response Systems (i.e. clickers) will be employed to assess student progress. Attendance will also be taken with these devices.

4. Point Totals and Grade Assignment
   6 exams @ 100 pts each = 600 points
   OWL HW = 150 points
   HyperChem 4 @ 25 pts = 75 points
   Participation 50 pts
   Total = 875 pts
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Notes and Policies:

1. Molecular models are allowed during the exam. The Final is May 9 (Wed) 10:15am-12:15pm.
2. Modeling assignments will be given in class and will involve the use of the program HyperChem which is available to students in the Departmental Computer Lab. A user name and password is required to use the computers.
3. Class attendance is expected and role will be taken.
4. Make-up exams are only allowed in the event of a legitimate excuse as determined by the instructor. Oversleeping is not an excuse. Exams must be made up as soon as possible.
5. Cheating will result in a grade of F for the course.
6. The course will move quickly and it is important to keep up on a daily basis. The best way to do this is to read the text and to work the problems.

Disabilities Services

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. Students with documented disabilities who may need reasonable academic accommodations should discuss these with me during the first two weeks of class. I will work with the Office of Disabilities Services (*208 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities. You will need to provide documentation of your disability to Disability Services.