

Organic Chemistry I Syllabus
University of Alaska Fairbanks
Fall 2011

Course Information

Chemistry F321, Organic Chemistry I, 3.0 Credits.

Reichardt 202, MWF 1-2 pm

Prerequisite: Chem 106 with grade of C or better.

Instructor

Thomas Green, Professor of Chemistry

Reichardt 174, Phone: 474-1559, Email: tkgreen@alaska.edu

Office Hours: Tues 1-3:30 pm, Thurs 1-3:30 pm and by appointment

Website: <http://www.uaf.edu/chem/faculty/tgreen/tgreen.htm>

Course Materials

Required: Text: McMurry, 8th edition, Brooks/Cole 2012

ACS Organic Chemistry Study Guide

Recommended: Study Guide Solutions Manual for McMurry, 2012

I will place a copy on reserve in Rasmuson Library

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. Understand fundamental concepts of bonding of organic compounds
2. Understand reactions and associated mechanisms of hydrocarbons.
3. Learn how to related conformations of hydrocarbons to stability
4. Understand the basic concepts of stereochemistry of organic compounds
5. Use spectroscopic techniques to determine structure.

Student Learning Outcomes

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

1. Be able to identify and draw common organic functional groups.
2. Know how to name hydrocarbons, including alkanes, alkenes, alkynes, dienes and aromatic compounds.

3. Know how to apply conformational analysis of cyclohexane and associated derivatives.
4. Be able to predict the reactivity alkanes, alkenes, alkynes, and dienes.
5. Know common reagents associated with the transformation of hydrocarbons into other functional groups.
6. Be able to confidently interpret the IR, Mass, NMR spectra of simple organic compounds in order to arrive at a structure.
7. Be able to draw and interpret 3D structures of stereoisomers.
8. Be able to predict and write mechanisms of reactions of hydrocarbons based on fundamental concepts of acid/base chemistry (nucleophiles and electrophiles).
9. Know how to build and optimize organic molecules using molecular modeling program (i.e. Hyperchem).

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.

Schedule and Coverage

Sept 2 - Sept 14; Chapters 1,2,3
Sept 19 – Sept 30; Chapters 4,5
Oct 5 – Oct 21; Chapters 6,7,8
Oct 26 - Nov 11; Chapters 9,10,11
Nov 16 – Nov 23; Chapter 12,13
Nov 24- Nov 27; Holiday
Nov 30 - Dec 9; Chapters 14,15
Dec 14 Final

Evaluation

1. Exams (6 @ 100 pts = 600 pts)

Exam I, Sept 19 (Mon); Chapters 1,2,3
Exam II, Oct 3 (Mon); Chapters 4,5
Exam III, Oct 24 (Mon); Chapters 6,7,8
Exam IV, Nov 14 (Mon); Chapters 9,10,11
Exam V, Nov 30: Chapters 12, 13.
Final, Dec 14 (Wed); Comprehensive Final, emphasis on Chapters 14,15: 1 – 3 pm

3. OWL Homework (240 pts)

See OWL Link on the Course Webpage. Due dates are indicated within the OWL website.

3. HyperChem Molecular Modeling Assignments (100 pts)

4 @ 25 pts = 100 pts

See Website for Specific Assignments and due dates.

4. Point Totals and Grade Assignment

6 exams @ 100 pts each = 600 points

OWL HW = 240 points

Molecular Modeling 5 @ 25 pts = 100 points

Attendance/Clickers = 30 lectures x 2 points = 60

Total = 1000 pts

Grading

90-100% A

80-89% B

70-79% C

60-69% D

<60% F

Notes and Policies:

1. Molecular models are allowed during the exam. The Final is Dec 14 (Wed) 1-3 pm
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. These make-up exams will be scheduled at later date so that all who missed the exam can attend.
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, perform OWL homework on a timely basis, and attend class.

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.

ATTENTION: Those wishing to take **Chem 324 Organic Lab** in the future should get on the waiting list. Contact Mist in the Chemistry Dept Office, Reichardt 194, 474-5510.

