

Chemistry 321
Organic Chemistry
Spring 2009

MWF 1:00-2:00	Reichardt Bldg 202
Instructor:	Thomas Clausen
Office:	Reichardt Bldg 188
Email:	fftpc@uaf.edu
Telephone:	474-5512 (office) 474-5510 (Chem Dept.)
Office Hours:	By appointment
Required Materials:	Organic Chemistry 7 th Ed., J. McMurry, Brooks/Cole OWL card RF classroom clicker
Recommended:	Study Guide & Solutions Manual for Org Chemistry HGS Molecular Model set

Objectives. This course will cover essentially all of the first sixteen (16) chapters of Organic Chemistry 7th Ed. by John McMurry. The course will focus on the bonding, stability, and shapes of organic molecules, major reactions (approximately 50) and their mechanisms, synthesis, structure determination with an emphasis on infrared (IR) and nuclear magnetic resonance (NMR) spectroscopies, common and systematic nomenclature, and stereochemistry concepts.

Grades. The final letter grade will be based on two computer (*HyperChem*) homework sets, an NMR Homework set (2 problems), OWL homework, quizzes (clicker format), three exams and a comprehensive final as described below:

<i>HyperChem</i> projects (2 @ 25pts ea)	50pts
Homework	100pts
OWL	50pts
NMR (2 @ 25pts ea)	50pts
In class clicker score	100pts
Three exams	300pts
<u>Final exam</u>	<u>100pts</u>
Total 700pts	

Obtaining an overall 90%, 80%, 70% and 60% of the total points will result in a final grade of A, B, C, or D respectively (+/- grades will not be given). I may make minor adjustments to this scale at the end of the semester but any changes will be to your benefit.

Freshman Grade Report Policy. The Freshman Grade Reports will be based on the first hour exam and the clicker/OWL scores.

HyperChem Projects. *Hyperchem* is a molecular modeling computer program that can be used to build, visualize, and calculate the structures of molecules or ions. Throughout the semester several projects will be suggested which you may complete using the chemistry department's computer lab. You will be graded on the first two reports you hand in. Each report should be 1-2 pages long and contain your name, an image of the subject molecule (or ion), a description of the details of how you carried out the calculation, the results of the calculation and a brief discussion that addresses the hypothesis presented in the project.

Use the chemistry department computers, or your own (if you have a copy of the student version of *HyperChem*), for the computational portion of the project. You may consult with other students concerning the mechanics, methods or interpretation of your results but you may not use other students' text or molecular structure files as your own.

OWL Homework. A PIN number is provided with your copy of the text that once activated will provide you 12 months access to an excellent set of **On-Line Web-Based Learning (OWL)** problems. These problems are especially useful when accessed from UAF where connections are fast and help is more available. Worked solutions are provided during each session.

Students will be given only five chances to solve each OWL homework problem. If you miss a problem, it is important that you see what you did wrong before you attempt to do the problem again. Keep in mind that spelling and formatting errors will result in not getting credit for your answers.

Some of the OWL units are tutorial units that may require downloading software such as Shockwave. These tutorial units are very worthwhile to perform but they will NOT be used to compute your final homework grade.

Quizzes. Each student must purchase and register a clicker (Turning Technologies Response Card RF), which is used in lecture to answer questions projected on screen. Information on how to register will be provided in class. Most questions will be recorded electronically. A correct answer is weighted 2, incorrect 1, and no answer 0. Your final score at the end of the semester will be calculated by the below formula which allows up to 10 missed questions to maintain a 100% grade:

$$FinalClicker\ Score = 50 \times \left(\frac{EarnedPoints}{TotalPossiblePoints - 10} \right)$$

Please bring the clicker to each class, taking care of it, replacing it if lost, and keeping it supplied with fresh batteries (they should last the whole semester with normal usage) is the student's responsibility.

Hour exams. There are four scheduled hour exams. If you miss an exam for a legitimate reason, it is extremely important for you to contact me as soon as possible (and certainly before the next class period) to make arrangements for a make-up exam.

Final Exam. A 120-minute final exam covering all lecture and reading topics will be given in Reichardt 202 on Friday May 8 during the 1:00-3:00 time slot. .

Make-up Quizzes and Exams. Illness, travel on business, or a personal or family crisis are legitimate reasons for missing an exam. If at all possible, notify the Professor (fftpc@uaf.edu or 474-5512- voice mail) or the departmental administrative assistant Mist D'June-Jussak (474-5510) of the situation. **Do not wait until the next lecture to make arrangements.** Usually make-up exams must be scheduled within one week of the missed exam. No make-up quizzes will be given.

Lab course (Chem 324). This course is the only chemistry prerequisite for taking Chemistry 324 (Organic Laboratory). If you wish to take the lab, however, you *must* reserve a spot by letting the department's administrative assistant (Mist D'June-Jussak) know when you plan to take the lab. Be aware that demand for the lab often exceeds its capacity and you may need to make reservations several semesters in advance. You must confirm your reservation during the normal period for course registration.

Department of Chemistry and Biochemistry Policy on Cheating. Any student caught cheating on graded work will be assigned a course grade of F. The student's advisor will be notified of this grade assignment and the student will not be allowed to drop the course.

Disabilities: Students with a physical or learning disability are required to identify themselves to Mary Matthews in the Disability Services office, located in the Center for Health and Counseling in order to receive special accommodations. The student must provide documentation of the disability. Disability Services will then notify me of special arrangements for taking tests, working homework assignments, and doing lab work.

Important Dates: Please keep the following dates in mind.

Last day to drop class and get 100% refund	Friday, January 30
Last day to drop class and get 50% refund	Friday, February 6
Last day for class withdrawal	Friday, March 27
Last day to apply for spring graduation	Friday, February 13

See academic calendar on inside cover of 2003-2004 course catalog for more important dates.

Lecture/Homework/Exam Schedule

The following schedule is tentative. Significant changes or additions to it will be updated through announcements in class along with email messages using the email address you submitted when you registered for OWL.

Date	Topic
1/23	Introduction
1/26	Chapter 1 Structure and Bonding
1/28	Chapter 1 (continued)
1/30	Chapter 2 Polar Covalent Bonds; Acids and Bases
2/2	Chapter 2 (continued)
2/4	Chapter 3 Alkanes and their stereochemistry
2/6	Chapter 3 (continued)
2/9	Chapter 4 Cycloalkanes and their stereochemistry
2/11	Chapter 4 (continued)
2/13	Chapter 4 (continued)
2/16	Exam 1 (Chapters 1-4)
2/18	Chapter 5 An overview of organic reactions
2/20	Chapter 5 (continued)
2/23	Chapter 6 Alkenes: Structure and Reactivity
2/25	Chapter 6 (continued)
2/27	Chapter 6 (continued)
3/2	Chapter 7 Alkenes: Reactions and Synthesis
3/4	Chapter 7 (continued)
3/6	Chapter 7 (continued)
3/9-3/13	Spring Break!!!
3/16	Chapter 8 Alkynes: An introduction to Organic Synthesis
3/18	Chapter 8 (continued)
3/20	Exam 2 (Chapters 5-8)
3/23	Chapter 9 Stereochemistry
3/25	Chapter 9 (continued)
3/27	Chapter 9 (continued)
3/30	Chapter 10 Organohalides
4/1	Chapter 11 Reactions of Alkyl Halides: Nucleophilic Substitution & Eliminations
4/3	Chapter 11 (continued)
4/6	Chapter 11 (continued)
4/8	Chapter 12 Structure Determination: Mass Spectrometry and Infrared Spectroscopy
4/10	Exam 3 (Chapters 9-11)
4/13	Chapter 13 Structure Determination: Nuclear Magnetic Resonance Spectroscopy
4/15	Chapter 13 (continued)
4/17	Chapter 13 (continued)

4/20	Chapter 14	Conjugated Dienes and Ultraviolet Spectroscopy
4/22	Chapter 14	(continued)
4/24	Chapter 15	Benzene and Aromaticity
4/27	Chapter 16	Chemistry of Benzene: Electrophilic Aromatic Substitution
4/29	Chapter 16	(continued)
5/1	No classes- Nanook Spring Fest	
5/4	Chapter 16	(continued); last day of lecture
5/6	no class	
5/8	Final Exam on Wednesday from 1-3	