CHEMISTRY 322       ORGANIC CHEMISTRY       Spring 2010

MWF 11:45-12:45  201A Reichardt Building
Instructor:      Thomas Clausen
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Required Materials
2. *Preparing for Your ACS Examination in Organic Chemistry*: ACS, Division of Chemical Education Examinations Institute, Chemistry Dept., Univ. of Wisconsin.
3. OWL Pin Number
4. Clicker

              2. HGS Molecular Model Set

Objectives. This is the second semester of a two-semester series designed to introduce chemistry, biology, pre-meds, and other students to organic chemistry. Essentially chapters 16-25 and portions of chapters 27 & 29 of the seventh edition of *Organic Chemistry* by John McMurry will be covered either by lecture or reading or both. These chapters emphasize the chemistry of aromatic, hydroxyl, carbonyl, ether, and amino groups which are common in biological molecules. Approximately 90 new organic reactions will be introduced with these functional groups. Many of the concepts introduced in the first semester of this sequence will be extensively used this semester. These concepts include:

- Bronsted Acids/Bases
- Nucleophilicity/Electrophilicity
- Bonding (π vs. σ)
- Resonance/aromaticity
- Hybridization
- Stereochemistry
- Spectroscopy
- Nomenclature
- Mechanisms (including SN1, SN2, E1, E2, & electrophillic attack on π systems)

Grades. The final letter grade will be based on OWL homework (100pts), 2 one-hour exams (200pts), a two hour American Chemical Society (ACS) standardized final (100pts), frequent quizzes (clickers; 50pts) and up to two HyperChem projects (25pts each). A total of 500 points are possible.

Your final grade will be based on a standard curve (90% =A; 80% = B; 70% = C and 60% =D). Plus/minus grades will not be given. I may choose to slightly relax this curve but I promise not to raise the standard.

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.
I will activate all relevant OWL problems shortly before we touch upon each chapter. Many problems will be described as optional and will not contribute to your grade. Other problems will be described as “required” and your grade will be based on your ability to “Master” four of these units by the due date. Mastering more than four units will not increase your grade (but see exception in next paragraph for making up missed assignments).

I expect you to master the units well before the due date. There will be NO EXTENSIONS given regardless of reason. I will, however, allow late assignments to be made up by Mastering two required units for each one missed.

You 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. I particularly like the end of chapter problems as a means to check your understanding of the material being covered.

Unlike General Chemistry, the vast majority (nearly unanimous) of students have given very favorable feedback on OWL for the organic courses.

In addition to OWL homework, I encourage you to do as many text problems as time allows. The text is exceptionally good (it is the most popular organic text world wide) and the end of chapter problems tend to be excellent. Students who do well in this course are those who do lots of problem solving outside of class!

Quizes. Many lectures will have a quiz in which you will respond using radio-frequency clickers. This will provide both you and me an opportunity to view how well you understand current material. Each correct answer will be counted as two points and all other responses will count as one point. No points will be given for non participation due to absences or malfunctioning clickers. At the end of the semester, your total number of clicker points will be adjusted by a multiplier to a 0-50 scale.

Hour exams. Two scheduled 1-hour 100-point exams covering the material in several chapters will be given on the following dates. If you miss an exam, be sure to contact me before the next class to make arrangements to make it up.

You are honor-bound not to obtain information about exam content from any source prior to taking a makeup quiz or exam.

Final Exam. A 110-minute final exam covering all lecture and reading topics will be given in NSCI 202 on Wednesday December 16th during the 10:15-12:15 time slot. This will be a standardized American Chemical Society Exam (multiple choice). It is highly recommended that you regularly make use of the ACS booklet “Preparing for your ACS Examination in Organic Chemistry; The Official Guide” throughout the semester.

HYPERCHEM PROJECTS: Several projects requiring the use of HyperChem will be assigned during the semester. Students may work individually or in pairs, but all reports should be written independently. The report for each project will be 2 to 3 pages long, showing the structure and other data, interpreting the findings, answering any questions posed in the assignment, and possibly referring to a literature source. A maximum of 25 points will be given for each project turned in (maximum of two projects).
Audit credit. In order to obtain audit credit in this course, students must attend class regularly, take at least five quizzes and other exams. Otherwise the result will be a W, not an AU.

Department of Chemistry 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.

Students with documented disabilities who may need reasonable academic accommodations should discuss these with me during the first two weeks of class. You will need to provide documentation of your disability to Disability Services in the Center for Health and Counseling, 474-7043, TTY 474-7045.
# CHEMISTRY 322  LECTURE/EXAM SCHEDULE  Fall 2009

<table>
<thead>
<tr>
<th>Week of Monday</th>
<th>Monday, Wednesday Topic</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Jan 17</td>
<td>Intro; Start on Chapter 16- Aromatic Reactions</td>
<td>No class on Monday or Wed</td>
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<tr>
<td>Jan 24</td>
<td>Chapter 16- Electrophilic Aromatic Substitution</td>
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<td>Jan 31</td>
<td>Chapter 17- Alcohols &amp; Phenols</td>
<td>Friday is last day to withdraw without receiving a W on your transcript</td>
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<td>Feb 7</td>
<td>Chapter 18- Ethers &amp; Epoxides</td>
<td>Friday is last day to withdraw with a 50% refund</td>
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<td>Feb 14</td>
<td>Review</td>
<td>Tuesday is deadline to apply for Spring graduation</td>
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| Feb 21         | A Preview of Carbonyl Reactions  
Chapter 19- Aldehydes & Ketones: Nucleophilic Additions Reactions | |
| Feb 28         | Chapter 20- Carboxylic Acids & Nitriles | |
| March 7        | Chapter 21- Carboxylic Acid Derivatives | |
| March 14       | **Spring Break!!!** | |
| March 21       | Chapter 21- More Carboxylic Acid Derivatives | Friday is last day to drop |
| March 28       | Chapter 22- Carbonyl $\alpha$-Substitution Reactions | |
| April 4        | Review | **EXAM II on Friday** |
| April 11       | Chapter 23- Carbonyl Condensation Reactions | |
| April 18       | Chapter 24- Amines and Heterocycles | |
| April 25       | Chapter 25 Carbohydrates | No Class on Friday: Spring Fest |
| May 2          | Review on Monday and **Final Exam** on Wednesday May 11th 10:15-12:15. | |