

Chemistry 143  
Organic Chemistry  
Professor Jose Madalengoitia  
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Fall, 2014

Mon 3:00-4:00  
Tue 10:00-11:00  
Fri 1:00-2:00

or by appointment

Solomons & Fryhle "Organic Chemistry" 11th ed., Wiley, 2013 and Study Guide.  
Molecular Structure Models  
Chemistry 32 or 36.

In Chemistry 143 we begin an exploration of the basic principles of Organic Chemistry. You will find that Organic Chemistry involves many new concepts, a large number of rules and formal relationships and a very large number of reaction mechanisms. However, as the course progresses and your organic "repertoire" grows, you will also find that a relatively small subset of rules serves to tie together the vast amount of information contained in the text. A special effort made at the beginning of the course to master the writing of proper Lewis structures with the correct number of bonds, formal charges, and unshared pairs of electrons will pay off handsomely as the course progresses. Also, an early and thorough understanding of the relative electronegativity of atoms, Lewis acid-base theory, Bronstead-Lowry acid-base theory, and the rules for writing proper contributing "structures" to resonance hybrids will make the understanding of reaction mechanisms considerably easier.

For each chapter you should work as many of the suggested problems as possible. I strongly urge you to keep up with your reading and problem solving. The study of Organic Chemistry is a highly structured cumulative intellectual enterprise. Cramming does not work well in this subject!

<https://bb.uvm.edu/webapps/portal/frameset.jsp>  
Log on with you UVM username and password.

Your course grade will be based on three examinations, a cumulative final examination, and your laboratory grade.

Lab	20%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Cumulative Final	20%

Midterm Dates:

Wednesday, September 24	6:00 P.M.-8:00 P.M.	TBD
Wednesday, October 22	6:00 P.M.-8:00 P.M.	TBD
Wednesday, November 19	6:00 P.M.-8:00 P.M.	TBD

Final Exam Date:

Friday December 12	10:30 A.M.-1:15 A.M.	Rowell 118
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No exam grades are dropped. The only valid excuses for missing an exam are medical or other true emergency situations. If you miss an exam for such a reason, you must inform me of it promptly, present appropriate documentation of your excuse, and receive formal approval to take a make up exam. If you miss an exam for any other reason, you will receive a grade of zero for that exam.

The answers to exam problems will be posted after each exam. If you have any questions concerning the grading of an exam, you must see me within one week after the day the exam is returned to the class. Exams must be taken in ink to insure that you can get points for a grading error.

Chapter 1. Bonding and Chemical Structure.

Sections 1.1-1.8, 1.01-1.14, 1.16-1.17

Suggested Problems: 1.5-1.7, 1.10-1.23, 1.31-1.44, 1.47-1.50

Chapter 2. Representative Carbon Compounds.

Sections 2.1-2.14

Suggested Problems:

Chapter 4. Alkanes.

Sections 4.1-4.14, 4.17-4.18

Suggested Problems:

Chapter 5. Stereochemistry.

Sections 5.1-5.8, 5.11-5.15

Suggested Problems:

Chapter 3. Intro to Organic Reactions.

Sections 3.1-3.3, 3.5-3.10, 3.12, 3.14, 3.16

Suggested Problems:

Chapter 6. Ionic Reactions.

All Sections

Suggested Problems:

Chapter 7. Alkenes and Alkynes I. Synthesis.

All Sections except 7.15

Suggested Problems:

Chapter 8. Alkenes and Alkynes II. Addition Reactions.

All Sections

Suggested Problems:

Chapter 10. Radical Reactions.

All Sections

Suggested Problems:

Chapter 11. Alcohols and Ethers.

All Sections

Suggested Problems:

Chapter 12. Alcohols from Carbonyl Compounds.

All Sections

Suggested Problems:



Be sure to check your equipment carefully. Any broken or missing items which are cracked, chipped or otherwise in less than perfect shape should be replaced by the stockroom. You will be required to replace any missing or defective items at your expense at the end of the semester, so make sure you start with a well-stocked drawer of unbroken equipment. Make sure your glassware is clean and

Use 10 grams of clove oil (instead of 5) and methylene chloride

There are no make-up lab sessions. If you miss a lab for a valid (i.e., medical or other true emergency) reason, you must provide your TA with a documented excuse for the absence.

The organic laboratory is a very safe place to work if safety precautions are always observed. Caution, as well as careful thought and knowledge of the characteristics of what one is working with are necessary to avoid accidents and injuries. Potentially hazardous apparatus and flammable, toxic, and/or corrosive chemicals are sometimes used. The following rules and procedures will be observed at all times.

1. You must wear safety goggles or OSHA approved glasses in the laboratory. Do not wear contact lenses.
2. Avoid personal contact with chemicals. Many chemicals have an adverse physiological effect (e.g. narcosis, toxicity, allergenicity, etc.). It is best to wear protective gloves. If you spill any chemical on your skin, wash it off at once with soap and water and tell your TA. Do not inhale chemicals or put them in your mouth.
3. Performance of unauthorized experiments is not allowed.
4. Horseplay in the laboratory is strictly forbidden.
5. Drinking, eating, or smoking in the laboratory is prohibited.
6. Removal of chemicals and equipment from the laboratory is forbidden.
7. Report all accidents and injuries, however minor, to the instructor.
8. Extraneous sources of sound are not allowed.
9. Do not work in the laboratory while under the influence of drugs or alcohol.
10. Dress properly. Do not wear open shoes or sandals. Do not wear baggy clothes. Long hair must be tied back.
11. Do not pipette by mouth.
12. When leaving the laboratory make sure all gas, air, water, steam, and electricity are turned off.
13. Know the location of exits, safety showers and eye-wash fountains.

