Department of Chemistry
University of Vermont

Chemistry 144 Spring, 2015
Organic Chemistry
Professor J. Madalengoitia
Jmadalen@uvm.edu
A-232 Cook

Office hours:

Mon	2:30-3:30
Tue	1:30-2:30
Th	10:15-11:15

or by appointment

Text: Solomons & Fryhle "Organic Chemistry" 11th ed., Wiley, 2014 and Study Guide.
Molecular Models: HGS Molecular Structure Models
Course Prerequisite: Chemistry 32 or 36 and 141 or 143.

Outline

Structure Determination: Sections 2.15, 2.16. Infrared Spectroscopy. Chapter 9. Nuclear Magnetic Resonance and Mass Spectroscopy.
All sections

Chapter 12. Alcohols from Carbonyl Compounds
Sections 12.1-12.8

Chapter 13. Conjugated Unsaturated Systems
All sections except 13.5

Chapter 14. Aromatic Compounds
All sections except 14.7C, 14.11

Chapter 15. Reactions of Aromatic Compounds
All sections

Chapter 16. Aldehydes and Ketones
All sections except 16.2, 16.3, 16.13, 16.14

Chapter 17. Carboxylic Acids and Their Derivatives
All sections except 17.2j, 18.12

Chapter 18. Reactions at the a Carbon of Carbonyl Compounds
All sections

Chapter 19. Condensation and Conjugate Addition Reactions
All sections

Chapter 20. Amines
All sections

Exams

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:

February 18	6:00 P.M.-8:00 P.M.
March 25	6:00 P.M.-8:00 P.M.
April 22	6:00 P.M.-8:00 P.M.

Midterm Exam Location:
TBA

Final Exam Date:
May 4 7:30-10:15

Final Exam Location:
` Votey 209

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. There will be only one make-up exam given during the semester; it will be scheduled at the end of the semester, and it will be cumulative.

Chemistry 144 Laboratory
Spring, 2015

Text: Ault, "Techniques and Experiments for Organic Chemistry" 6th Ed., University Science Books, 1998.

General Considerations:

Read the entire chapter before doing the experimental work. The experiments designated within each chapter describe the procedures that you will actually carry out in the laboratory. Unless otherwise noted, you will be doing the microscale version of the experiment.

20-22 JAN	Check-in		
27 - 29 JAN	39	Triphenylmethanol from Methyl Benzoate	448
3 - 5 FEB		triphenylmethanol continued	
10 - 12 FEB	66	Diels-Alder Reaction	508
17-19 FEB	44	Nitration of methyl benzoate	464
24 - 26 FEB	50	Syn of 2,4-dinitrophenylpiperidine	477
3 - 5 MAR		**OFF SPRING RECESS**	
10 - 12 MAR	71	Prep trans,trans-1,4-diphenylbutane	524
17 - 19 MAR	95	tetraphenylcyclopentadienone	595
24 - 26 MAR	77	Prep of methyl salicylate : oil of wintergreen	538
31 MAR - 2 APR	63	p-Nitrobenzenediazonium sulfate and p-(4-nitrobenzeneazo)-phenol	499
7 - 9 APR	58	Vanilin oxime from vanilin	490
14 - 16 APR		**CHECKOUT**	

Grading for the Laboratory:

The laboratory grade will be based on your general ability to carry out the experiments, the accuracy with which you record and interpret your results, your performance on laboratory quizzes, and a subjective evaluation by the TA of your overall ability as an experimentalist. The total laboratory grade will be based on the following distribution of points:

Notebook	100
Quizzes	20
TA Evaluation	5
TOTAL POINTS	125

Further details of lab grading are presented in a separate Laboratory Guidelines Document that you will receive at the Check-in Lab.

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.

Laboratory Safety:

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.

Rules:

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, alergenicity, 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.

14. Protect your hands with gloves or a towel when pushing glass tubing or thermometers into stoppers or rubber tubing. Lubricate the hole.

15. The working space, drawers, cabinet, and shelf above your bench should be neat and clean at all times.

16. The balances and balance area should be cleaned of any chemical spill.

17. Put glass in the broken glass disposal box; not in the trash.

18. Always point test tubes, flasks, and separatory funnels away from you or other passers by.

19. Follow the instructions in you laboratory text for proper waste disposal.

In case of accident

1. Fire. Personal safety is most important. Make sure everyone gets out of the room and the building. After the safety of all is assured, you may extinguish the fire. If a person's clothing catches fire, he or she needs help. Prevent the person from running. Put him or her under the safety shower and pull the chain. (It is less effective to smother flames with a fire blanket. Never spray a person with a carbon dioxide fire extinguisher.

2. Chemicals. If corrosive chemicals are spilled on clothing, immediate showering with the clothes on is the best remedy. If chemicals are spilled on the skin, wash them off with large volumes of water. If the chemical is pilled in the eyes, it should be washed immediately at the aye wash fountain.

3. Injuries. All injuries, no matter how minor must be treated immediately by competent medical staff at the University infirmary. Report the injury to your lab instructor.