

Chemistry 142, Spring 2003, MWF 10:10-11:00, B106 Angell

Organic Chemistry

Professor M. Strauss

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Office Hours:

Mon 11-12

Wed 11-12

Th 10 - 11

And by appointment. (Also feel free to drop in ANY TIME. If I am not busy I'll see you)

Text: Solomon's "Organic Chemistry", 7th edition and Study Guide

Lab Text: Williamson, "Macroscale and Microscale Organic Experiments" 3rd Edition.

HGS Molecular Models

Prerequisite: Chemistry 32 or 36 and 141 or Instructor's permission. I **STRONGLY RECOMMEND THAT YOU DO NOT TAKE CHEMISTRY 142 IF YOU RECEIVED A GRADE BELOW A C IN CHEMISTRY 141!!**

Grades

Your grade will be determined by your performance on 3 midterm exams (see below for times), a cumulative final exam, and your lab grade.

Midterm Schedule: (All midterms in B106 Angell, the lecture room, from 6 to 9 P.M.)

Exam 1 Feb. 12, Wednesday
Exam 2 Mar 17, Wednesday
Exam 3 Apr 16, Wednesday

Final Exam (In B106) at 8AM, May 5, 2003

Grade Distribution:

		<u>Points</u>
Exam 1	20%	100
Exam 2	20%	100
Exam 3	20%	100
Final	20%	100
Lab	<u>20%</u>	<u>100</u>
Total	100%	500

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.

The answers to exam problems and a list of graders will be posted on line after each exam. If you have any questions concerning the grading of an exam, you must see the specified grader within one week after the day the exam is returned to the class. After that time period has passed, I will make no grade changes for the exam.

Labs

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

<u>Dates</u>	<u>Week of</u>	<u>Chapter and Lab Equipment</u>
1.	Jan 27	Check-in and Epoxidation of Cholesterol #27
2.	Feb 3	Diels-Alder #49, Exp. 2, TA will do the macroscale cracking of dicyclopentadiene
3.	Feb 10	Triphenylmethanol by Grignard #38, Exps. 4,5 (macroscale)
4.	Feb 17	Finish Triphenylmethanol
5.	Feb 24	Rxn of Triphenylmethyl Carbocation #31, Exps. 1,2,3
6.	Mar 3	Nitration of Methyl Benzoate #28, Exp. 1
7.	Mar. 10	Friedel-Crafts Alkylation #29, Exp. 4
8.	Mar 24	Synthesis of <i>trans</i> -9-(2-Phenylethenyl)anthracene #39, Exp. 1
9.	Mar 31	Tetraphenylcyclopentadienone #52, Exp. 2 (macroscale)
10.	Apr 7	Camphene to Camphor #68, Part 2 Exp. 1
11.	Apr 14	Dyes and Dyeing and Checkout #47 Part 1 Exps. 1,4 and Part 2 Exps 1,2
Check out week of Apr 21		

Lab Grading:	Notebook	80%
	Lab Quizzes	15%
	<u>T.A. Evaluation</u>	<u>5%</u>
		100%

Further details will be provided at the lab check in. There are no make-up lab sessions. If you miss a lab due to a valid medical or other emergency, provide documentation to your TA.

Outline

Chapter 13. Conjugated Unsaturated Systems

Sections 13.1, 13.2B, 13.3B, 13.4, 13.5, 13.7A, 13.7B, 13.10, 13.11

Problems 13.2-13.5, 13.9-13.16, 13.19, 13.20, 13.22-13.2, 13.26, 13.29, 13.30, 13.33, 13.40.

Structure Determination: Section 2.16. Infrared Spectroscopy. Chapter 9. Nuclear Magnetic Resonance and Mass Spectroscopy.

All sections except 9.11, 9.15B, 9.18

Problems 9.26-9.28, 9.29 (c,d,f,g,h,l), 9.30, 9.33, 9.36-9.38, 9.40

Chapter 14. Aromatic Compounds

All sections except 14.7B, 14.11

Problems 14.7-14.10, 14.12, 14.16-14.18, 14.21

Chapter 15. Reactions of Aromatic Compounds

All sections

Problems 15.1-15.11, 15.13-15.15, 15.17, 15.19, 15.24, 15.25-15.29, 15.31, 15.34-15.36

Chapter 16. Aldehydes and Ketones I

All sections except 16.3, 16.13, 16.14

Problems 16.3, 16.4, 16.7, 16.9-16.19, 16.21, 16.22, 16.24, 16.27, 16.28, 16.32, 16.46, 16.50

Chapter 17. Aldehydes and Ketones II

All sections

Problems 17.2-17.5, 17.7-17.9, 17.12-14, 17.16, 17.18-17.27, 17.31, 17.32, 17.35, 17.40

Chapter 18. Carboxylic Acids and Their Derivatives

All sections except 18.2j, 18.12

Problems 18.6, 18.7, 18.10-18.14, 18.16, 18.17, 18.21, 18.23, 18.24-18.26, 18.29, 18.32, 18.34, 18.38

Chapter 19. Synthesis and Reactions of β -Dicarbonyl Compounds

All sections except 19.8, 19.12

Problems 19.2-19.6, 19.8-19.23, 19.26-19.31, 19.39, 19.40, 19.44

Chapter 20. Amines

All sections except 20.10, 20.12

Problems 20.3-20.8, 20.10-20.17, 20.23-20.27, 20.30, 20.31, 20.34, 20.48

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, 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. Lab coats are recommended but not required.
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 eyewash 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 venting separatory funnels away from yourself or your lab colleagues.
19. Follow the instructions in your 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 in the eyes, it should be washed immediately at the eye 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.

* CLASS CALENDAR *

	M	T	W	TH	F	S	S
	Jan 13	Jan 14	15	16	17	18	19
	(1)		(2)		(3)		
	20	21	22	23	24	25	26
	Holiday MLK		(4)		(5)		
	27	28	29	30	31	Feb 1	2
LAB 1	Lab Begins (6)		(7)		(8)		
	3	4	5	6	7	8	9
LAB 2	(9)		(10)		(11)	Review	Review
	10	11	12	13	14	15	16
LAB 3	(12)		(13) * Ex 1 *		(14)		
	17	18	19	20	21	22	23
LAB 4	Holiday Pres Day		(15)		(16)		
	24	25	26	27	28	Mar 1	2
LAB 5	(17)		(18)		(19)		
	3	4	5	6	7	8	9
LAB 6	(20)		(21)		(22)	Review	Review
	10	11	12	13	14	15	16
LAB 7	(23)		(24) * Ex 2 *		(25) * Last Day to withdraw *		
← SPRING RECESS →							
	24	25	26	27	28	29	30
LAB 8	(26)		(27)		(28)		
	31	Apr 1	2	3	4	5	6
LAB 9	(29)		(30)		(31)		
	7	8	9	10	11	12	13
LAB 10	(32)		(33)		(34)	Review	Review
	14	15	16	17	18	19	20
LAB 11	(35)		(36) * Ex 3 *		(37)		
	21	22	23	24	25	26	27
CHECK OUT	(38)		(39)		(40) Honors Day		
	28	29	30	May 1	2	3	4
	(41)		(42) Classes End		Exams	Exams	Exams
	5	6	7	8	9	10	11
	* * Final Exam 8 AM						

NOTE SLIDES
No. 1 → 99

NOTE SLIDES
No. 100 → 182

NOTE SLIDES
No. 183 → 271

LAB 1

LAB 2

LAB 3

LAB 4

LAB 5

LAB 6

LAB 7

LAB 8

LAB 9

LAB 10

LAB 11

CHECK OUT

THE CHEMISTRY 142 LISTSERV

Announcements re: Chem 142, discussion of content, handouts, practice exam answers, grades and other important information for Chemistry 142 may occur on the internet via the Chemistry 142 listserv. you MUST join this list as soon as possible so that you do not miss material. I also recommend that you check your email for Chemistry 142 material at least once a day.

The list is not a general chat list, and email sent there doesn't just come to me. When you send a message to it or reply to it, the whole class will receive what you write, along with your name and email address. You can ask questions or make comments about content and course management. I also check my email, and may respond to individual queries.

TODAY--->Enroll on the list. Here is how you do it: send e-mail to:

listserv@list.uvm.edu

and put the subscribe command as the first line of your message along with the list name and your first and last name. Some examples:

sub chem142 Henry Somebody
sub chem142 Joan A. R. Person
sub chem142 Tom Lee III

Once you are on, you may send a message to everyone on the list by sending e-mail to:

chem142@list.uvm.edu

To leave the chem142 list, send e-mail to:

listserv@list.uvm.edu

and put the signoff command (unsub will also work) as the first line of your message with the list name. For example:

signoff chem142

Also, be sure to turn off automatic signature generation in your mailer - Listserv won't understand your signature lines and will just give you error messages.

Finally, don't use your mailer's confirmation of reading or auto-reply features, these are not understood by Listserv.

My signature below indicates that I have read, understood and will comply with the safety rules. I understand that my lab grade will be penalized and I may be dismissed from lab if I do not comply.

Signature: _____

Date: _____

Printed Name _____

Campus Phone No. _____

Last 4 digits of S.S. No. _____

Home Phone No. _____
(if different from campus number)

Advisor's name _____
(if you know it)

Lab time & section you are enrolled in →

Check that box which applies

11208	Lab A 01	8-10:40	Tues	<input type="checkbox"/>
11209	Lab A 02	2-4:45	Tues	<input type="checkbox"/>
11210	Lab A 03	1:25-4:15	Wed	<input type="checkbox"/>
11210	Lab A 04	8-10:40	Thurs	<input type="checkbox"/>
11212	Lab A 05	2-4:45	Thurs	<input type="checkbox"/>
11213	Lab A 06	5-8:30 PM	Thurs	<input type="checkbox"/>
11214	Lab A 07	8-10:40	Thurs	<input type="checkbox"/>

Are you an evening division or continuing education student?

Yes No

I could, if asked, switch from my lab time checked above, to other times .

(Circle those which would work):

A01 A02 A03 A04 A05 A06 A07

(Check the appropriate box)

HAND THIS SHEET IN
AT THE END OF
THE FIRST
CLASS