

CHEMISTRY 118C – SPRING 2024

INSTRUCTOR

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TEACHING ASSISTANTS

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MATERIALS

Required

Organic Chemistry, 8th Edition, Vollhardt & Schore
Goggles and 100% cotton lab coat

Recommended

Study Guide/Solution Manual for Organic Chemistry, 8th Edition
Molecular models for visualization

PREREQUISITES

Coursework: CHE 118A/B or equivalent.

Knowledge

A variety of knowledge from 118A and 118B may be helpful. In particular, you may want to review the following chapters (especially basic carbonyl chemistry – Ch. 17-18). However, most concepts will be briefly reviewed if they are going to be explicitly tested on. Approximate chapter correspondences are indicated below.

118A/B Chapters	17	17	7, 17, 18	16	18	8, 17	15	--
118C Chapter	19	20	21	22	23	24	25	26

GRADING

Grading will be based on the following aspects of the course:

Lab (15%) – All labs must be completed to pass the course. Students are expected to attend and complete all lab assignments. Late labs will be deducted 10% when turned in late on the same day as they are due. Lab reports turned in next day to 1 week late will lose 25%. Lab reports more than 1 week late will receive 0 points. All lab reports must be completed individually even if you work with a partner during lab. Students who miss a lab will need to work with their TA and the head TA to schedule a make-up, preferably the same week.

Midterms (50%) – A total of 3 midterms will be given throughout the quarter, each covering 2 chapters of material. Exams will be 45 minutes and will start at the beginning of lecture on the scheduled date. **There will be no makeup or remote exams for any reason.** The lowest midterm score will be dropped. If you are ill or otherwise miss class for any reason, including emergencies, that will be the dropped exam.

Final Exam (35%) – The final exam will be cumulative but will heavily emphasize the final two chapters of material. Students who miss the final will be given an incomplete only if they have a legitimate reason for their absence *and* a passing grade prior to the final. Written documentation of the reason for absence from the final is required. By campus policy there are no regrades on final exams.

Exam Dates	Section A (TuTh)	Section B (MWF)
1	Tuesday, April 23	Wednesday, April 24
2	Thursday, May 9	Wednesday, May 8
3	Tuesday, May 28	Wednesday, May 29
Final	Wednesday, June 12 (8:00AM)	Friday, June 7 (8:00AM)

Exam grading will be determined by the absolute quality of work. There is no preset quota for any letter grades. It is theoretically possible for everyone to get an A. The following cutoffs will be used:

Grade	Range		Grade	Range
A+	> 97.00%		C+	71.00-74.99%
A	90.00-96.99%		C	64.00-70.99%
A-	87.00-89.99%		C-	60.00-63.99%
B+	84.00-86.99%		D+	56.00-59.99%
B	78.00-83.99%		D	49.00-55.99%
B-	75.00-77.99%		D-	45.00-48.99%
			F	0-44.99%

I reserve the right to lower (but not raise) these thresholds based on the overall difficulty of midterms and the final exam. Percentages are written out to two decimal places to emphasize that grades will not be rounded.

CHEATING

Academic dishonesty of any kind will not be tolerated. I expect strict adherence to the Code of Academic Conduct at all times. Be sure you read it and understand it (<http://sja.ucdavis.edu/cac.html>). My policy is to refer all violations of the Academic Code to Student Judicial Affairs for discipline.

CLASS ENVIRONMENT

Students in this class are encouraged to speak up and participate during class meetings. Class time, Piazza discussions, and office hours should all be opportunities to get feedback on newly formed ideas about the course material, and it is expected that students will respond to others in a respectful and nonjudgmental way. Because the class will represent a diversity of individual identities, backgrounds, experiences, and beliefs, every member of this class must show respect for every other member of this class. We support an inclusive learning environment where diversity and individual differences are understood, respected, appreciated, and recognized as a source of strength. It is expected that the students, the TAs, and I will respect differences and continue to develop our understanding of how other peoples' perspectives, behaviors, and worldviews may be different from our own.

LEARNING OBJECTIVES

Upon successful completion of this course students should be able to:

Predict or Explain Organic Reactivity (Primary Focus for Chem 118C)

- Predict the outcome of given organic reaction
- Draw the arrow-pushing mechanism for a given reaction
- Determine what reagents must be added to produce a given transformation
- Predict which of multiple competing mechanisms/products will win out under a given set of conditions
- Explain an observational result using conceptual knowledge

Use spectroscopic data to identify various features of unknown organic compounds

- Mainly NMR, with some IR

Speak the Language of Organic Chemistry

- Be fluent in the vocabulary of organic chemistry
- Name chemical structures with various functional groups using IUPAC nomenclature and recognize the common names of certain common molecules
- Draw organic molecules using zig-zag/bond-line structures

Identify Information from Chemical Structures

- Understand the three-dimensional structure of organic molecules
- Identify common organic functional groups (or patterns of functional groups) and their general properties
 - Focal functional groups in 118C: Carboxylic acids, carboxylic acid derivatives (esp. esters and amides), amines, substituted benzenes, beta-dicarbonyl compounds, carbohydrates, heterocycles, amino acids and proteins
- Identify acids, bases, nucleophiles, electrophiles, and leaving groups
- Identify electron-donating and electron-withdrawing groups

COURSE ACTIVITIES

The only *required* activities are labs and exams. However, your ability to do well on the exams depends on you learning the material. There are a variety of ways to do that, and no one way is correct. The time you have devoted to studying organic chemistry should be divided among several of the following activities in a way that seems to work best for you. Ideally, no more than 30-40% of your time should be spent on any one activity.

Read the Textbook – I put this first not because it is the most important, but because it is the first step for gaining new knowledge, including the vocabulary to talk about the concepts you’re trying to learn. Before going to class or working on problems, at least skim the textbook readings. The goal is not memorization of details, but to get a scope of the topics being covered.

Attend Class – You will get the most out of class if you have already interacted with the material through reading the textbook. Though there is a lot of material to cover, some of the time during class will be devoted to problem solving, where we work on examples of the most common types of problems you’ll encounter in organic chemistry.

Go to Lab – Lab gives you an opportunity to practice hands-on techniques, but it also gives you an opportunity to learn the logic behind running an organic reaction (or other experiment). As you work through each lab, ask “what is the purpose of this step?” for each step of the procedure.

Work on Problems Together – Practice, practice, practice. Go through and try out the recommended book problems, *without* having the solution manual open. It is highly recommended that you do this with partners! Finding at least one other person to work on organic chemistry with regularly outside of class is one of my biggest recommendations for succeeding in and enjoying this class.

Use Piazza – We’ll be using Piazza as the discussion board for this course. Students are encouraged to post both chemistry and logistical questions there, since in a class this large, it is likely someone else has the same question. Students are also highly encouraged to answer each others’ questions; explaining something to someone else is arguably the single best way to learn the material. It is also worth reading over other people’s posts to learn the answers to questions you hadn’t even thought of yet.

Go to Office Hours and Tutoring – Attending office hours or tutoring is not only for if you’re struggling! They are great resources that you are encouraged to take advantage of. Each TA or tutor will have their own vibe and different sets of advice, so shop around and find one or more people who are a good fit for you.

Actively Review the Material – Don’t just reread the textbook and lecture notes over and over. Highlight, reorganize, make lists, but don’t just passively reread the material.

Review the Questions – This is written separately because many students don’t think of the questions (in class, recommended book problems) as part of the class, but an important way to study is to look back at what you’ve already been asked to do. Those same types of questions will be asked on the exams. Do you have a general strategy for answering each major question type? Could you still answer it if the molecule was changed? Don’t overlook the importance of studying the problems.

CLASS SCHEDULE (TENTATIVE) – SECTION A*Time:* TuTh 10:30-11:50AM*Location:* Rock Hall 194

Class	Day	Date	Chapter
1	Tues	April 2	19
2	Thurs	April 4	19
3	Tues	April 9	19, 20
4	Thurs	April 11	20
5	Tues	April 16	20
6	Thurs	April 18	21
7	Tues	April 23	MIDTERM
8	Thurs	April 25	21
9	Tues	April 30	22
10	Thurs	May 2	22
11	Tues	May 7	23
12	Thurs	May 9	MIDTERM
13	Tues	May 14	23, 24
14	Thurs	May 16	24
15	Tues	May 21	24, 25
16	Thurs	May 23	25
17	Tues	May 28	MIDTERM
18	Thurs	May 30	26
19	Tues	June 4	26
20	Thurs	June 6	Practice
FINAL	Wed	June 12	8:00AM

CLASS SCHEDULE (TENTATIVE) – SECTION B*Time:* MWF 8:00-8:50AM*Location:* Teaching & Learning Complex 1020

Class	Day	Date	Chapter
1	Mon	April 1	19
2	Wed	April 3	19
3	Fri	April 5	19
4	Mon	April 8	19
5	Wed	April 10	20
6	Fri	April 12	20
7	Mon	April 15	20
8	Wed	April 17	20
9	Fri	April 19	21
10	Mon	April 22	21
11	Wed	April 24	MIDTERM
12	Fri	April 26	21
13	Mon	April 29	22
14	Wed	May 1	22
15	Fri	May 3	22
16	Mon	May 6	23
17	Wed	May 8	MIDTERM
18	Fri	May 10	23
19	Mon	May 13	24
20	Wed	May 15	24
21	Fri	May 17	24
22	Mon	May 20	25
23	Wed	May 22	25
24	Fri	May 24	25
25	Mon	May 27	HOLIDAY
26	Wed	May 29	MIDTERM
27	Fri	May 31	26
28	Mon	June 3	26
29	Wed	June 5	26
FINAL	Fri	June 7	8:00AM