

CHEM 8B: Organic Chemistry II
UCSC Department of Chemistry & Biochemistry
Summer 2018

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Teaching Assistants

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Free small group tutoring, sign up at sserc.ucsc.edu/slug-success

Discussion Sections (sign up for a new section on 8A website): Consistent attendance to discussions is vital to your success in organic chemistry. Plan on preparing for discussion by attempting, if not completing the most recent HW assignment beforehand, and bring questions. You may attend any or all discussion sections! Extra credit may be given for participation in your enrolled section only.

Required Materials

- Read the STUDY EXPECTATIONS & LEARNING ADVICE on course website
- J. McMurry, *Organic Chemistry*, 8th Edition, Cengage 2012
- *Study Guide & Student Sol'n Manual - McMurry Org. Chem.*, 8th Edition Cengage 2012
- *Optional but Highly Recommended:* Molecular Model Kit for Organic Chemistry; 3-ring binder for notes; bound notebook for HW and reading questions; colorful pencils or erasable pens for taking notes

Summer Session Students with Disabilities: If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me as soon as possible, preferably within the first week of the Summer Session. Contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu for more information. DRC students with extra time accommodations also enrolled in 8L: prevent a time conflict for exam. *I can arrange your exam to start early but only if you let me know in the beginning of the term.* Students cannot come to lab late for any reason; plan ahead!

Academic Integrity - *Students will take their own individual exams without additional resources (cheat sheets, etc). Communication between students during exams in any form will not be tolerated.* Students who participate in such forms of academic dishonesty may face academic sanctions. For more information, visit http://www.ue.ucsc.edu/academic_integrity.

Learning Resources

Course Website (<http://acrochem.sites.ucsc.edu/chem-108a/>) - This is where you will find the updated syllabus, reading questions, lecture handouts, practice exams, etc.

Course Reserves – the text book and solutions manual can be checked out from the S&E library for two-hour periods. Be considerate of other students' needs for the book too!

Khan Academy Video Tutorials can be great additions to your study routine. Peruse these in your precious free time for topics that are difficult for you.

Lectures are posted *via* UCSC webcast (webcast.ucsc.edu), which may take several days to be updated. Login credentials will be posted on the course website. **This should not be used as a regular substitute for lecture**, but rather used as a review or to catch up due to an unavoidable absence. Please direct any technical questions to webcast@ucsc.edu.

Course Description

CHEM 8B is the second quarter of organic chemistry and builds on the structural and reactivity conventions of organic compounds learned in CHEM 8A. The ability to distinguish between nucleophiles and electrophiles allows students to understand a broader scope of synthetic organic reactions, including those of aromatic compounds, alcohols, amines, and carbonyl compounds. Learning the chemistry of these functional groups lays the foundation for understanding the reactivity of more complex biomolecules such as carbohydrates, proteins, and lipids.

Course/Classroom Protocol

Students are expected to treat their instructor, TA, and fellow students respectfully!

Attendance at all class sessions is necessary for successful completion of this course. It is 100% your responsibility to be present for lecture material and in-class announcements.

As a courtesy, please step outside if you need to use your cell phone during class. Do not use phones during class. This includes taking pictures (webcasts posted for future reference) – write by hand instead. Students can take notes with a tablet but please check with me first. It is important that these devices are used only for course-related material. You will no longer be allowed to use your electronic device in class if you take advantage of your privilege. You will be asked to leave class if you cannot follow these rules.

Assignments and Grading Policy

Textbook reading assignments are given in the lecture schedule and are to be completed before that day's lecture. **Reading questions** are available online to guide your preparation. Students find these incredibly useful for using prep time wisely.

Homework is the most crucial way to gain an understanding of organic chemistry. You absolutely need to complete your homework in a timely manner if you expect to pass CHEM 8B! The homework sets that correspond to each lecture are given at the end of the syllabus. These are not turned in for credit but are the focal point of discussion sections.

Discussion Activities (quizzes, worksheets, games) are given in most discussion sections to assess your knowledge in a low-pressure environment before exams. While not strictly required, students may be given extra credit for attending and fully participating in activities. **You must participate in your enrolled discussion section for extra credit** but are welcome to attend additional sections for your own benefit.

Midterm Exams (60%) are comprehensive assessments that review in detail recently covered topics. Each exam builds on material found on previous exams. Exam questions will be similar, if not identical, to the homework and in-class examples.

The Final Exam (40%) is cumulative with a somewhat greater focus on chapters not covered on the first two exams. Please pay attention to in-class announcements about exams. There will be no make-ups! The accelerated nature of the summer session makes it impossible to accommodate students who miss an exam, no exceptions.

A typical distribution of letter grades is as follows:

A: 100-90%; B: 89-75%; C: 74-60%.

Usually, an overall score of at least 60% is required to pass. Consider this distribution of letter grades as a rough guide only. This course is typically not curved. Just do your best!

LECTURE SCHEDULE

Dates	Reading (McMurry 8)	Lecture Topic	Lecture No.
M 7/30	16.1-3	Electrophilic Aromatic Substitution (EArS)	1
T 7/31	16.4-5	EArS - Disubstituted Benzenes	2
W 8/1	16.6,9-11 17.1-3	Aromatic Chemistry Alcohols	3
R 8/2	17.4-7	Alcohols	4
F 8/3	-	Q&A Session	-
M 8/6	18.1-3,5-6	Ethers and Epoxides	5
T 8/7		<i>Before Lecture 6, read p. 712-716.</i>	6
	19.1-7	Aldehydes & Ketones: Nomenclature, Synthesis, Oxidation, Nucleophilic Additions	
W 8/8	-	Q&A Session	-
R 8/9	EXAM 1	Cumulative, Focus on Chapters 16-19.7	1-6
F 8/10		<i>Before Lecture 7, read p. 717-720</i>	7
	19.8-11	Nucleophilic Addition of Alcohols & Amines to Aldehydes & Ketones	
M 8/13	20.1-7	Carboxylic Acids & Nitriles	8
T 8/14	21.1-4,6-7	Nomenclature and Reactions of Acid Chlorides, Esters, and Amides	9
W 8/15	22.1-6	Introduction to Enol and Enolate Chemistry	10
R 8/16	23.1-3	Self-Aldol Condensation; Enones	11
F 8/17		Q&A Session	
M 8/20	EXAM 2	Cumulative, Focus on Chapters 21-24	1-11
T 8/21	24.1-8	Amines	12
W 8/22	25.1-5	Carbohydrate Nomenclature	13
R 8/23	25.6	Reactions of Carbohydrates	14
F 8/24		Q&A Session	
M 8/27	26.1-2	Amino Acid Structure & Titration	15
T 8/28	26.3-5,7	Amino Acids Synthesis, Peptide Primary Structure & Synthesis	16
W 8/29	27.1-3	Lipids	17
R 8/30	-	Q&A Session	-
F 8/31	FINAL EXAM	Cumulative	1-17

Homework

Plan to spend at least 2 hours on homework every day. This is the best way to learn what you know and what you don't know!

Read the Study Expectations & Learning Advice online.

Work through the assigned homework problems to get a more complete understanding of the concepts presented in lecture. Homework is not collected so it is entirely up to you to do on your own. **This will be the focal point in discussion sections.** Plan on completing each homework set the same day of the lecture. Do not fall behind on this. Self-grade your homework using the Solutions Manual or the back of the text *after* giving your best attempt at the problem set. Do not rely too heavily on the Solutions Manual.

Problems begin within the chapter and continue at the end with "Additional Problems." **Reaction worksheets are provided on the CHEM 8A/B websites for most chapters (not listed in HW below, check for the reaction worksheet each time we finish a chapter).**

Lecture	Chapter	Assigned Problems - McMurry 8 th Edition (Clarifications to solutions manual for italicized problems online)
1	16	1,3-7
2	16	8-13, 28, 29, 36, 37 (10,12)
3	16* 17	14, 18, 20, 22, 23, 51, 68, 72 (22d, 23b, 68a) 2, 4, 6
4	17*	7-10, 12-15, 30, 34, 35, 41 (7c, 14ac, 41)
5	18*	3, 5, 7, 14, 23, 25a-d, 28, 30acde, 43, 55 (3,28,30de,55)
6	19*	2-5, 7, 40bdef (3c, 4cd, 5, 7)
↑ Problems for Exam 1		
7	19*	10, 11, 13, 14, 16, 17, 40gh, 48, 58 (11, 14, 48)
8	20*	2(skip e), 7, 9a, 10, 11, 13, 26, 33, 35, 48, 57 (33cde,35a, 48)
9	21	2a-f, 3-5(skip 5d), 7, 9, 11-13, 17-21, 34-36, 38, 62 (5a,7,9,11,12,20b,36c,38aeg)
10	22	1, 2, 4-6, 20-22, 24, 25cd, 30, 34, 45abef (5, 45f)
11	23	1, 3-4, 27, 29
↑ Problems for Exam 2		
12	24	2a-e, 4, 6, 8, 9, 11, 17, 19, 36a-e, 40(skip d), 47cd, 50ade (36bc)
13	25	Carbohydrate Worksheet (online)
14	25	16-23, 43, 66
15	26	Practice amino acid titrations (pH 0-14) given pKa values
16	26	3, 5, 9, 32, 38a Amino Acid & Peptide Problems (online)
17	27	1-5, 15, 17, 20-22, 25, 35, 40, 46 (40)
↑ Problems for Final Exam		

*Don't forget about the reaction worksheets online!