

CHEMISTRY 262, SECTION 1**SPRING 2014: 11:00 AM – 12:15 PM, MWF, CHAPMAN 211****INSTRUCTOR: DR. M.T. CRIMMINS, C640 KENAN LAB****crimmins@email.unc.edu******PREREQUISITE: C- OR BETTER IN CHEMISTRY 261 OR EQUIVALENT****

Office Hours: Monday, Thursday 3:30 - 4:45 p.m. or by appointment

Group question and answer sessions: held regularly, TBA.

TEXT: Organic Chemistry, Paula Bruice; 7th Edition

Organic Chemistry Student Study Guide and Solutions Manual, Paula Bruice

Mastering Chemistry, Pearson

OTHER MATERIALS: Turning Point clicker (e.g. RF-LCD), HGS Molecular Models

LECTURES AND EXAM DATES

DATE	BRUCE
January 8, 13, 15, 20	Introduction; Chapter 15 NMR
January 22, 27, 29	Chapter 17 Aldehydes and Ketones
February 3	Chapter 12 Organometallic Compounds
February 5 (Th)	Exam I Chapter 15, 17, 12 Bruice
February 10, 12, 17, 19	Chapter 16 Carboxylic Acid Derivatives
February 24, 26	Chapter 18 Enols and Enolates
March 3	Chapters 16 – 8 Synthesis workshop
March 5 (Th)	Exam II Chapter 16, 18 Bruice
March 7 - 15	Spring Break
March 17, 19	Chapter 8: Aromaticity, Dienes, Diels-Alder
March 24, 26, 31	Chapter 19: Electrophilic Aromatic Substitution
April 2, 7	Chapter 20: Amines
April 9 (Th)	Exam III Chapter 8, 19, 20 Bruice
April 14, 16	Chapter 21: Carbohydrates
April 21, 23	Chapter 22: Amino Acids, Proteins
April 28 (T)	FINAL EXAM: 11:00 a.m. Chapman 211

STUDY TIPS FOR THE COURSE

Organic chemistry is a two-semester sequence, which throughout builds sequentially on material presented earlier in the course. *It is essential that you do not fall behind. It becomes extremely difficult to catch up.* The best approach to mastering the material in this course is to keep up daily, therefore you should spend some time every day working on the course. Read the assigned sections and/or view assigned videos before class. It is significantly better to invest shorter amounts of time every day for seven days than to sit down and spend a large block of time one day a week on this course. Repetition is extremely important. It takes time to master some of the difficult concepts and going back over certain ideas will make them much easier to comprehend. In addition, new ideas that you learn later in a chapter will often make earlier concepts more understandable. This is why repetitive studying and working every day is so important. If you are having difficulty with the course, get help as soon as possible. Waiting until half way through the semester (or longer) is too late.

Review the following from Chem 261 as soon as possible, preferably before the beginning of the semester:

- a. bonding (Bruice Chapter 1)
- b. formula writing (Bruice Chapter 1)
- c. structures and names of functional groups (Bruice Chapter 3)
- d. basic nomenclature rules (Chapters 3, Bruice pgs 97-108)
- e. arrow pushing electron movement
- f. acid-base theory (Bruice Chapter 2)
- g. stereochemistry (Bruice Chapter 4)

MOLECULAR MODELS

Molecular models are useful for much of the course, particularly the sections involving stereochemistry. Since stereochemistry becomes an integral part of the course after its introduction, models will also be useful later.

HONOR CODE

Since all graded work (including homework to be collected, quizzes, papers, mid-term examinations, research proposals, laboratory results and reports, etc.) may be used in the determination of academic progress, no collaboration on this work is permitted unless the instructor explicitly indicates that some specific degree of collaboration is allowed. This statement is not intended to discourage students from studying together or working together on practice problems, which are not to be collected.

It is a violation of the Honor Code to fail to comply with exam procedures. Exam procedures will be provided for each exam. These will include when you are allowed to begin the exam, when you should stop working on the exam and how to maintain the integrity of individual performance on the exam. It is a violation of exam procedure to look at another student's exam during the exam period whether you use that information or not. It is also a violation of exam procedure to "allow" another student to look at your exam during the exam period. Each student is responsible for maintaining the integrity of the of exam by protecting their answers.

Violations of the Honor Code and/or Exam Procedures will be vigorously pursued through the Honor System.

ATTENDANCE AND DAILY WORK

To create an active, engaged learning environment in this class, you will be asked to master some content *before* class by watching video lectures and/or reading. A daily quiz at the beginning of every class will help you assess your understanding of this pre-class material and/or the previous class. In this context, you should be prepared to think about and answer questions that are posed. During class, you will apply your knowledge also by solving problems in small groups.

Excellent attendance is required. You will receive an overall “Daily Work” score (50 points: approximately 11-12% of your grade, see grade breakdown below) based on a mixture of quizzes, class participation, and online self-tests. More than 200 Daily Work Points will be available in the semester, your final total will be divided by 4 to obtain your Daily Work grade that is calculated into the final grade. A maximum of 50 points can be contributed toward your final grade. Because there is ample opportunity to collect points, no “make-ups” for clicker questions whether a result of a missed class, a forgotten or non-functioning clicker, or whatever reason.

If you know you will **need** to miss an exam (e.g. for a medical procedure or University sponsored field trip), you may arrange to take the exam early. Arrangements must be made **at least two weeks** in advance. Exams missed for other reasons will be counted as your “drop” exam.

DAILY WORK: QUIZZES (4 PT EACH: AT LEAST 100 PTS POSSIBLE)

You will be given a short and simple quiz at the start of each class that will either test your understanding of the preceding class information or your understanding of the reading/video assignment for the class for the day. **No makeups will be given.**

DAILY WORK: CLASS PARTICIPATION (2 PT EACH: AT LEAST 50 PTS POSSIBLE)

During some class periods, you will work on a set of problems together in groups. The problems will teach you *how to apply* the concepts you learned through class, reading, and videos. You may use your book and other notes to work the problems.

DAILY WORK: MASTERING CHEMISTRY SELF TESTS AND HOMEWORK PROBLEMS (AT LEAST 65 PTS POSSIBLE)

Online **Self-Tests** will be assigned in MasteringChemistry at the end of each chapter. These will normally be due at **11:59 pm on Sunday** of the appropriate week. Self-Test problems are much like end-of-chapter problems from the textbook. You will receive three chances to get the right answer for each question with 25% deduction for each incorrect answer. Correct answers are available after the due date. **Please note:** in order to earn credit for your work, you must click the “give up” button on multi-part problems where you do not achieve the correct answer.

No late self-tests will be accepted for any reason. The MasteringChemistry clock will be used to determine the submission date/time. This clock may differ from yours, so submit your work well in advance. All graded self-tests are to be worked independently (by you alone) with no collaboration or outside discussion. **Any collaboration will be treated as a violation of the UNC Honor Code.**

There will also be periodic problem sets assigned to be turned in and graded. These will contribute to your daily work grade.

PRACTICE PROBLEMS

Recommended practice problems from your textbook will also be assigned for you to work at your own pace. These assignments will not be graded, but questions from the practice problems may be on exams.

Typically, the more problem solving you do, the better you will comprehend the concepts of the course. All the problems within the text of the chapter and at the end of the chapter are useful and will help if you work them. However, if time limitations prevent you from working all the problems, work only part of each problem such as the **a** and **b** part rather than **a, b, c, and d**. Problems that are representative of the material are listed below. Keep this list of problems in a handy location (e.g. cover of your three-ring binder).

END OF CHAPTER PROBLEMS: BRUCE 7TH EDITION

Chapter 12: 1, 4, 8, 9, 10, 24, 25, 26(a, b, c, e), 27, 28 (a, b) 34, 35

Chapter 15: 3-6, 11-14, 16, 18, 19, 20, 23, 24, 26, 27, 33, 46, 48-55, 58, 60, 61, 64, 65, 66, 70, 73

Chapter 16: 3, 4aceg, 6, 11, 13, 15, 16, 18, 23, 24, 28, 30-32, 41, 43-45, 47, 56a-c, g-l, 57, 58, 60, 63, 64, 70, 71, 75-78, 81, 86, 89, 93.

Chapter 17: 2, 5, 6, 13, 14, 18, 20, 28, 33-35, 37, 39, 40, 41, 44, 47, 49-52, 54, 56, 58, 59, 61, 62, 66, 69, 70, 74, 75, 79

Chapter 18: 4, 5, 7, 8, 10, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 47, 52, 53, 54, 55, 56, 58, 59, 60, 61, 62, 64, 65, 67, 68, 69, 70, 71, 73, 74, 79, 81b, 87

Chapter 19: 4, 6, 7, 8, 9(c,d), 13, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 32, 34, 35, 42, 43, 44, 48, 52, 53, 55, 56, 57, 59, 60, 62, 63, 69, 73, 74, 86, 87, 91

Chapter 20: 4, 5, 6, 9, 22(a,c,f), 23, 24, 25, 27

Chapter 21: 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 21, 22, 23, 25, 31 (no d, g), 37, 66.

Chapter 22: 2, 5-8, 10, 11, 21-23, 27, 28, 33, 35, 38, 47, 50, 55, 62, 63, 70bc.

GRADING

Hour exams (300 pts); Final exam (100 pts); Daily Work (50 pts).

I want to grade your best effort. In the event that you must miss a single hour exam, you will be graded on Option B below. An absence from a second hour exam will result in a score of 0 for that exam. *No makeup exams will be given; there will be no exceptions to this policy.*

Final letter grades will be assigned in accord with the 2000 Educational Policy Committee Report, which describes the meaning of grades as follows:

"A": Outstanding mastery of course material

"B": Superior mastery of course material

"C": Adequate mastery of course material

"D": Mastery of course material that is unsatisfactory or poor

"F": Unsatisfactory mastery of course material

We will calculate your grade based on whichever option below gives you the HIGHEST overall score.				
If you miss an exam, you will automatically be graded with Option B.				
Item	OPTION A Points Possible	OPTION A % Breakdown	OPTION B Points Possible	OPTION B % Breakdown
Daily Work	Max = 50 (total/4) (>220 pts available)	11.2%	11.2%	11.8%
Midterms	300	66.6% (3 scores: 22.2% each)	200 x 1.333	59.2% (2 scores: 29.6% each)

Final Exam	100	22.2%	100 x 1.333	29.4%
Total	450	100%	450	100%

TENTATIVE CLASS SCHEDULE				
Lecture	Class Date	Day	Topics	Reading Assignment Bruice, Section:
1	1/8	Th	Introduction; Chapter 15: NMR spectroscopy	15.1 – 15.5
2	1/13	T	Chapter 15: NMR spectroscopy	15.6 – 15.11
3	1/15	Th	Chapter 15: NMR spectroscopy	15.12 – 15.15
4	1/20	T	Chapter 15: NMR spectroscopy examples	
5	1/22	Th	Chapter 17: reactivity of aldehydes and ketones	17.1 – 17.6
6	1/27	T	Chapter 17: reactions with alcohols, water, amines	17.6 – 17.12
7	1/29	Th	Chapter 17: Wittig, unsaturated compounds	17.13, 17.16 - 19
8	2/3	T	Chapter 12: organometallic compounds	12.1 – 12.3
9	2/5	Th	Exam 1	Chapters 12, 15, 17
10	2/10	T	Chapter 16: reactivity of carboxylic acid derivatives	16.1 – 16.7
11	2/12	Th	Chapter 16: acid chlorides, esters, anhydrides	16.8 – 16.12
12	2/17	T	Chapter 16: acids, amides, nitriles	16.14 – 16.19
13	2/19	Th	Chapter 18: enols and enolates, halogenation	18.1 – 18.7
14	2/24	T	Chapter 18: enamines, aldol reactions	18.8 – 18.12
15	2/26	Th	Chapter 18: Claisen reactions, Robinson, malonic ester synthesis	18.13 – 18.19
16	3/3	T	Chapters 16 – 18 Synthesis workshop	
17	3/5	Th	Exam 2	Chapters 17, 18, 19
	3/10, 12		Spring Break	
18	3/17	T	Chapter 8: benzene, aromaticity	8.1 – 8.2; 8.7 – 8.9
19	3/19	Th	Chapter 8: benzene, aromaticity	8.10 – 8.12, 8.19 – 8.20
20	3/24	T	Chapter 19: electrophilic aromatic substitution	19.1 – 19.9
21	3/26	Th	Chapter 19: reactions of substituted benzenes	19.11 – 19.18
22	3/31	T	Chapter 19: nucleophilic aromatic substitution	19.21 – 19.24
23	4/2	Th	Chapter 20: amines	20.1 – 20.4
24	4/7	T	Chapter 20: aromatic heterocycles	20.5 – 20.8
25	4/9	Th	Exam 3	Chapters 19, 20, 21
26	4/14	T	Chapter 21: carbohydrates, glucose structure	21.1 – 21.6, 21.10 – 21.11
27	4/16	Th	Chapter 21: glycosides, disaccharides, polysaccharides	21.12 – 21.17
28	4/21	T	Chapter 22: amino acids, synthesis	22.1 – 22.4, 22.6
29	4/23	Th	Chapter 22: peptides, proteins	22.8 – 22.17
30	4/28	T	Final Exam 11:00 am	