CHEMISTRY 345 – Section 2 – Fall 2012

Tu/Th 9:30 – 10:45 AM, Room 1361 Chemistry

Instructor: Professor Jennifer M. Schomaker
8108 Shain Tower, Chemistry
schomakerj@chem.wisc.edu

Office Hours: Schomaker: Fridays from 1-2 PM; 8108 Shain
Jared Rigoli: M: 2:25-4:25 PM B317
David Grigg: T, Th: 8:50-9:50 AM B317

Website: Learn@UW

I. INTRODUCTION

Chemistry 345 is the second semester of a two-semester organic chemistry sequence. The first course in the sequence is Chem 343, and successful completion of 343 or its equivalent with a grade of C or higher is a prerequisite for enrollment in 345. There may be an override in the system where you were able to register for Chem 345 without meeting these prerequisites, but I strongly recommend you drop the course if you did not receive at least a C (and preferably, a B) in Chem 343. The lab course associated with the sequence is Chem 344, which may be taken concurrently with 345 or in a subsequent semester.

II. COURSE MATERIALS

Textbooks:

Required:
Organic Chemistry (5th edition), M. Louden

Recommended:
Solution Manual for Louden, *Organic Chemistry*

On reserve:
Organic Chemistry, M. Jones, Jr.
Organic Chemistry, Solomons & Fryhle

**All texts will be available on reserve in the Chemistry library. Louden and its solution guide will also be available at College and Steenbock libraries.*

Other materials:

Recommended:
Molecular model kit

**These materials are available from the UW Bookstore. $AX\Sigma$ also sells model kits in the lobby during the first few weeks of class.*

You are allowed to use models during your examinations.

Course websites: This course makes extensive use of Learn@UW. Lecture notes, handouts, problem sets, reading assignments, and announcements will be posted to the course website regularly. You will also use Learn@UW to view your grades.

III. LECTURE AND DISCUSSION

Preparation: Chem 345 will cover Ch 12–13 and 16–27 of Louden. Ch 1–11 and 14–15 were covered in Chem 343. Because of the cumulative nature of the organic chemistry sequence, you must be comfortable with all of the material covered in Chem 343. If you are not, I would strongly suggest that you seek help through the Chemistry Learning Center, on-line tutorials or a private tutor. I cannot help you catch up on material you missed from Chem 343, as much as I would like to. There is simply too much to cover in Chem 345.

Lecture: Attendance is a good idea for success in this course. There are 250 students in this course and even a 70% attendance rate means I could end up repeating myself 75 times, which I guarantee I don't have the time to do. I love teaching organic chemistry and am pulling for everyone to get an "A" because 1) I am a nice person and like others to be happy and 2) I think organic chemistry is totally cool and I want you to appreciate it. I am always willing and happy to help you if you are trying! Lectures are designed to highlight the important concepts, provide supplemental examples in addition to examples from your textbook, help you understand broad themes of chemical reactivity and connect the basic science to advances that have greatly benefited modern society. The best approach is to read the material prior to lecture and then use lecture to clarify issues and "connect the dots" so to speak. The lecture notes posted to Learn@UW are meant to alleviate occasional absences due to illness or other unavoidable conflicts; they cannot replace the lecture itself.

Reading: Suggested reading assignments will be posted to the Learn@UW course site. The textbook provides more detailed information than the lecture can cover; all information covered in the assigned reading is fair game for exams. However, my past experience in teaching this course is that I tend to emphasize what I find most important during the lectures and the review sessions. I've never gone to the textbook to look for a "gotcha" question, but the book is still worth reading to obtain more in-depth discussions on lecture topics. I also give out assigned problem sets, where I again stress the things that I think are most important for you to know. I will sometimes draw on the textbook problems for inspiration, or occasionally use a problem directly on an exam. However, attending the lecture and working through the assigned problem sets is usually sufficient and to my knowledge, students have not found it necessary to work every single problem at the end of a chapter. If you want to do that, I'm more than happy to help out if you have questions.

Discussion sections: The main purpose of the discussion section is to get guided help on problem-solving. To get the most out of section, come prepared with specific questions on concepts, problems, and reading material that you find most challenging. The two TA's for your course, Jared Rigoli and David Grigg, are both accomplished and experienced. They may choose to run their discussion sections differently, but both will be valuable to you in better understanding the course material. Worksheets, class discussion and going over suggested and assigned homework all are possibilities. There are no quizzes planned at the current time.

Etiquette: Please turn your cell phone off during lecture and discussion. Using your cell phone or computer to surf the web, text, IM, etc., during class is distracting and rude, both to the instructor and to the people around you. Just because I don't say anything to you directly doesn't mean I won't remember who you are ☺

IV. ASSIGNMENTS AND GRADING

Homework: Five problem sets will be assigned over the course of the semester. These are to be turned in at the beginning of lecture on their due dates. Problem sets turned in one lecture period

late will receive a 20% penalty; problem sets turned in beyond this point, but prior to posting of the answers will receive a 50% penalty. I hope you understand that I cannot give you credit for a problem set once the answers have been posted. Since the exact date when the answers are posted will likely depend on how hectic my schedule is, it's probably best to turn them in on time! Each problem set will be worth 20 points and count a total of 100 points towards your final grade.

Study groups: Learning is more enjoyable and more effective when problems are worked collaboratively. Studying and working problems in groups is strongly recommended. Collaboration on graded problem sets is allowed, but all work you turn in must be your own. Please put the name of your collaborators on the top of your homework when you turn it in.

Midterm exams: There will be four midterm exams (100 points each). Exams will be given during the normal lecture period. Makeup exams will not be given- if you miss an exam, your grade will be calculated using Formula 2. It has been necessary to institute this policy due to abuse of "make-up" exams in the past. However, if you work with the McBurney Resource Center and need alternate accommodations for the exams, please speak with me as soon as possible to make the necessary arrangements.

Re-grade requests: Re-grade request forms can be downloaded from Learn@UW and attached to your exam booklet. These are due the day of the lecture after the exam is handed back. This again will be variable and I will do my best to give you plenty of time to look over your answers, as the TAs and I can and do make mistakes! Please, do not write on your exams after they have been handed back. Exams that have been modified in any way are not eligible for re-grading. We will scan all exams prior to grading. If you plan on changing answers after the exam has been returned, don't bother to submit a re-grade. You'll be caught and neither of us will be happy with the outcome (see the Academic Misconduct discussion below).

Final exam: The final exam is currently scheduled for Sunday, December 15, 5:05 pm – 7:05 pm. The final will be cumulative and be worth 200 points.

Grades: A maximum of 720 points can be earned during the semester. Your final score will be computed using one of the following formulae, depending on which results in the highest numerical value:

Formula 1:			Formula 2: Top 3 midterm exam scores:	
	Exam 1	100		300
	Exam 2	100		
	Exam 3	100		
	Exam 4	100		
	Problem Sets	100	Problem Sets	100
	Molecule assign.	20	Molecule assign.	20
	Final	200	Final	300
	TOTAL	**720**	**TOTAL**	**720**

Molecule assignment: The molecule assignment basically entails a brief write-up (in either Word or PowerPoint form) about a molecule that you find interesting. The structure of the molecule, a few details about its physical properties, history and uses should be included. Please include references as to your sources- Wikipedia is fine, as long as you include the appropriate citations. Every lecture period, I will choose 2-3 submissions and display them before class for 5 extra credit points. Since I do this in PowerPoint format, students that submit the assignment in this form have a better shot at the extra credit ☺

Extra credit: The coolest part of being an organic chemist is the chance to develop brand-new reactions and make molecules that have never been made before! Your textbook only discusses well-established chemistry (boring!) and doesn't capture the true excitement of the field. So I always like to give a couple of extra credit assignments where I give you 'hot' articles from the literature to read and ask you to compare and contrast these state-of-the-art chemistries with the reactions you've learned in class. The number and point assignments for these extra credit opportunities are at my discretion.

Letter grades are not assigned until the end of the course. The number of points you have accumulated through your work during the semester will be the only factor in determining your final grade. I may elect to curve the course, but my willingness to do so will be based on the attitude, participation and hard work of the students in the course.

ACADEMIC MISCONDUCT

All scientific fields, including the engineering and health professions, demand strict standards of professional integrity. I have the same expectations for students in my courses and take all instances of academic misconduct very seriously. If the teaching staff and I determine that you have cheated in Chem 345, you will receive an F for the semester, and your case will be recommended to the Dean of Students for further sanction.

Tentative agenda (subject to change depending on the pace at which topics are covered)

Week	Date	Chapter	Lecture material	Assignments
1	Sept 3 Sept 5	Intro/Review/Ch 12 Ch 12	IR Spectroscopy IR Spectroscopy	
2	Sep 10 Sep 12	Ch 13 Ch 13	NMR Spectroscopy- **Guest lecturer** NMR Spectroscopy	PS #1 out
3	Sep 17 Sep 19	Ch 13 Ch 16	NMR Spectroscopy Electrophilic Aromatic Substitution	
4	Sep 24 Sep 26	Ch 16 Ch 17	Electrophilic Aromatic Substitution Allylic and Benzylic Reactivity	PS #1 due
5	Oct 1 Oct 3	**MIDTERM EXAM 1** Ch 17/18	**IN LECTURE (Ch. 12, 13, 16)** Allylic and Benzylic Reactivity	PS #2 out
6	Oct 8 Oct 10	Ch 18 Ch 18	Aryl and Vinyl Halides Aryl and Vinyl Halides	
7	Oct 15 Oct 17	Ch 19 Ch 19	Aldehydes and Ketones Aldehydes and Ketones	PS #2 due
8	Oct 22 Oct 24	Ch 20 **MIDTERM EXAM 2**	Carboxylic Acids **IN LECTURE (Ch. 17-19)**	PS #3 out
9	Oct 29 Oct 31	Ch 20 Ch 21	Carboxylic Acids Carboxylic Acid Derivatives	

10	Nov 5 Nov 7	Ch 21 Ch 22	Carboxylic Acid Derivatives Enols and enolates	PS #3 due
11	Nov 12 Nov 14	Ch 22 Ch 22	Enols and enolates- **Guest lecturer** Enols and enolates	PS #4 out
12	Nov 19 Nov 21	**MIDTERM EXAM 3** Ch 23	**IN LECTURE (Ch. 20, 21, 22)** Amines	
13	Nov 26 Nov 28	Ch 23 **THANKSGIVING**	Amines **NO LECTURE**	PS #4 due PS #5 out
14	Dec 3 Dec 5	Ch 24 Ch 24, 26	Carbohydrates Carbohydrates, Amino Acids	
15	Dec 10 Dec 12	Ch 25 **MIDTERM EXAM 4**	Amino Acids **IN LECTURE (Ch. 22 pt. 2, 23-24, 26)**	PS #5 due
	TBA		REVIEW SESSION	
FINAL EXAM: Sunday, December 15, 5:05 pm – 7:05 pm				

Strategies for success in this class.

1. **Don't fall behind!** This class asks you to absorb a lot of information at a rapid pace, and each successive chapter builds upon principles in the previous chapters. Cramming just doesn't work in this class. Instead, you should set aside a little time every day (30 minutes or so) to study and keep caught up.

2. **Practice, practice, practice.** <u>This is the most important key to success in this course</u>.

   It's a truism among endurance athletes that you train for the event that you're racing. That is, you can't train for a marathon without running, and you'll never win a bike race if you don't ever climb on the bike. The same is true of your classes. In this course, the exams that make up the majority of the points you earn ask you to solve problems. Therefore, you should train for exams by working problems, and the more problems you do the better off you are. This is why I ask you to do so many problems, between the problem sets and the clicker questions and the suggested problems from the book. Louden is a great textbook, and one of the reasons we selected it is the quality of the problems at the end of each chapter. I have also put last year's textbook (Solomons) on reserve in the Chemistry library, which is also a good source of problems.

3. **Read the book.** Each unit has more information than I can reasonably cover in a one-hour lecture. The textbook is your primary source of information, and any information in the assigned reading is fair game for exams. I strongly reading the chapter twice – once before the corresponding lectures, so that you can follow the key points in the lecture, and then once again afterwards, so that all of the details have a chance to sink in. Work the in-text problems as you go.

4. **Come to lecture.** The purpose of lecture is to highlight the most important material in each unit, to help you organize the information in a way that's logical and easy to remember, and to show how certain important themes run throughout the entire course. From a completely GPA-centric point of view, it makes sense to come to lecture because it helps identify what I think is most important to know, which is likely also to be what I focus on when writing exams. It's also your best opportunity to ask me questions about the material and the structure of the course.

5. **Take good notes and copy them over.** The key to managing all of this information is to organize it well in your head. The book presents the material in a way that makes sense to the author; I'll present it in a way that makes sense to me. But your brain is likely to work in a different way. It's a really good idea to take notes on your reading, take notes in lecture, and re-organize them into a master set of notes that works for you.

6. **Study in groups.** Studying with your friends makes studying seem less like a chore and more like a social occasion, and it'll help you keep up with the class. It's also a great way to identify the material that's the trickiest to grasp, so that you can ask better questions during lectures and office hours.