CHEMISTRY 345 – Section 1 – Fall 2012

MWF 9:55 – 10:45 AM, Room 1361 Chemistry

Instructor:	Prof. Tehshik P. Yoon 5317a Chemistry tyoon@chem.wisc.edu
Office Hours:	Weekly office hours, times and location to be announced
Website:	Learn@UW The Chem 345 Facebook page (linked on 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. Successful completion of 343 or its equivalent with a grade of C or higher is a prerequisite for enrollment in 345. 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:

Required:
"i>clicker" RF personal response device
Recommended:
Molecular model kit

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

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.

There is also a Facebook group for our section of Learn@UW that can be used to ask questions and start discussions of the course material. The URL for this site is posted on Learn@UW. You can also search for "Chem 345 Yoon".

III. LECTURE AND DISCUSSION

Preparation: Chem 345 will cover Louden Ch 12–13 and 16–27. Ch 1–11 and 14–15 were covered in Chem 343. Because the organic chemistry sequence is cumulative, you must be comfortable with all of the material covered in Chem 343 to do well in Chem 345.

Lecture: Attendance is crucial for success in this course. Lectures will highlight important concepts, provide supplemental examples, and help you understand broad themes of chemical reactivity. 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.

Discussion sections: Attendance and participation in discussion sections are required and count for 20 points toward your total course grade. The main purpose of the discussion is to get guided problem-solving practice. Your TA will assign problems, but to get the most out of section, come prepared with specific questions on concepts, problems, and reading material that you find most challenging. Graded problem sets will also be handed back during discussion.

Reading: Reading assignments will be posted to the front page of 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.

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 up to one day late will receive a 20% penalty; problem sets turned in beyond this point will not be accepted. Each problem set will be worth 25 points and contribute a maximum of 125 points towards your final grade.

Suggested problems from the textbook will also be posted to Learn@UW at the beginning of each chapter. These will not be collected or graded, but they are an invaluable source of practice problems.

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.

Clicker questions: We will make frequent use of "ConcepTests" which will ask you to respond to questions in-class using your clickers. You can earn up to 20 points for participating in clicker polls. 20 points will be awarded for responding to 80% of all clicker questions; 10 points will be awarded for 60% participation. For technical help, see: https://tle.wisc.edu/clickers.

Midterm exams: There will be three midterm examinations (100 points each). Examinations will be given during the normal lecture period. Please note that makeup exams will not be given.

Re-grade requests: Re-grade request forms can be downloaded from Learn@UW and attached to your exam booklet. These are due to Prof. Yoon the day of the lecture after the exam is handed back. Do not write on your exams. Submitting a modified exam for re-grading will be considered academic misconduct.

Final exam: The final exam is currently scheduled for Friday, December 21, 10:05am–12:05 pm. The final will be cumulative and be worth 200 points.

Grades: A maximum of 665 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:		
	Exam 1	100		Top two	
	Exam 2	100		midterm exam	
	Exam 3	100		scores:	200
	Problem Sets	125		Problem Sets	125
	Clicker points	20		Clicker points	20
	Discussion	20		Discussion	20
	Final	200		Final	300
	TOTAL	**665**		**TOTAL**	**665**

Letter grades are not assigned until the end of the course. The distribution will curve around a low B average (~2.75). The number of points you have accumulated through your work during the semester will be the only factor in determining your final grade.

Students with disabilities: Accommodations recommended by the McBurney center are gladly made. Please email Prof. Yoon as early in the semester as possible to make arrangements.

V. ACADEMIC MISCONDUCT

Scientific fields, including engineering and the health professions, cannot function without the strictest standards of personal integrity from their practitioners. The expectations for your academic integrity in Chem 345 are very high, consistent with the high standards of professional ethics you will be held to throughout your careers. Chem 345 is a challenging course that will require hard work from everyone involved. Academic misconduct is unfair to your classmates, it demeans the effort you are investing in this class, and it undermines the trust that you will ask people to put in you during your professional career. If you observe instances of academic misconduct, you should report them to the professor, who will take every precaution to protect your anonymity.

Please be aware of UWS 14 Policies regarding academic misconduct. In most cases, the penalty for cheating in Chem 345 will be removal from the course and a failing grade for the semester. All cases will also be referred to the Dean of Students, who may apply further sanctions.

VI. CLASS CONDUCT, COMMUNICATION, AND ETTIQUETTE

Chem 345 is, unfortunately, one of the largest lecture courses that Wisconsin offers. In order to keep the semester from becoming chaotic, I'd like to ask you to work with me to keep the class running smoothly:

1. I get a lot of emails, and messages slip through the cracks more often than I'd like. To minimize the possibility that I'll miss your email, please put "Chem 345" in the subject of any message you send me. Feel free to email me if you have questions about the logistics of the class, if you have concerns about your grades, or if you'd like to set up a meeting. But I'd like for you to post your scientific questions to the Facebook page. Chances are, if I did a poor job explaining something, one of your classmates will have the same question as you, and it will keep me from having to answer the same question 260 times.

2. Please minimize chatter in the classroom. You should feel free to ask me questions during lecture, but please don't distract the people around you.

3. Laptops and cell phones may not be used during lecture. You can't take organic chemistry notes on a computer, and texting or emailing during class is distracting to you, to me, and to people seated around you.

4. If you feel like you're falling behind, don't feel shy about asking for help. There are a lot of resources available to help you succeed in Chem 345. But in a class of this size, it's hard for the teaching staff to identify you if you're struggling with the material. Get help early if you need it.

5. Letters of recommendation that come from a large lecture class, by necessity, lack detail. I can write about the content of the class, your grade and rank compared to your classmates, and the efforts UW–Madison makes to combat "grade inflation." But I will never be able to write a letter as informative as one from an instructor from a smaller course. I will normally provide recommendation letters only for students who have received an A or AB in the class.

VII. STRATEGIES FOR SUCCESS IN CHEM 345

1. **Practice, practice, practice.** This is the most important key to success in this course.

   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.

2. **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.

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 recommend reading the chapter *before* the corresponding lectures, so that you can follow the key points in the lecture. 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 easier 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.

5. **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.

6. **Additional resources.** There are several groups on campus that offer free tutoring services, and the Chemistry department website includes a list of private tutors available for hire. Links to all of these resources are available on the Learn@UW course page.

Tentative agenda (likely to change)

Week	Date	Chapter	Lecture material	Assignments
1	Sep 5 Sep 7	Introduction Ch 12	Syllabus, Class policies, etc. IR Spectroscopy	
2	Sep 10 Sep 12 Sep 14	Ch 12 Ch 13 Ch 13	NMR Spectroscopy	PS #1 out
3	Sep 17 Sep 19 Sep 21	Ch 13 Ch 13 Ch 16	Electrophilic Aromatic Substitution	
4	Sep 24 Sep 26 Sep 28	Ch 16 Ch 16 **MIDTERM EXAM 1**	**IN LECTURE**	PS #1 due PS #2 out
5	Oct 1 Oct 3 Oct 5	Ch 16 Ch 17 Ch 17	Allylic and Benzylic Reactivity	
6	Oct 8 Oct 10 Oct 12	Ch 18 Ch 18 Ch 19	Aryl and Vinyl Halides Aldehydes and Ketones	
7	Oct 15 Oct 17 Oct 19	Ch 19 Ch 19 Ch 19		PS #2 due PS #3 out
8	Oct 22 Oct 24 Oct 26	Ch 20 Ch 20 **MIDTERM EXAM 2**	Carboxylic Acids **IN LECTURE**	
9	Oct 29 Oct 31 Nov 2	Ch 21 Ch 21 Ch 21	Carboxylic Acid Derivatives	
10	Nov 5 Nov 7 Nov 9	Ch 22 Ch 22 Ch 22	Enols and enolates	PS #3 due PS #4 out
11	Nov 12 Nov 14 Nov 16	Ch 22 Ch 23 Ch 23	Amines	
12	Nov 19 Nov 21 **Nov 23**	Ch 23 Ch 23 **THANKSGIVING**	Aromatic heterocycles **NO LECTURE**	PS #4 due
13	Nov 26 Nov 28 Nov 30	Ch 23 Ch 27 **MIDTERM EXAM 3**	Pericyclic Reactions **IN LECTURE**	PS #5 out
14	Dec 3 Dec 5 Dec 7	Ch 27 Ch 27 Ch 24	Carbohydrates	
15	Dec 10 Dec 12 Dec 14	Ch 25 Ch 26 Ch 26	Peptides	PS #5 due
FINAL EXAM: Friday, December 21, 10:05am – 12:05pm				