

## CHEMISTRY 345 – Section 1 – Fall 2013

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

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<b>Instructor:</b>	Prof. Tehshik P. Yoon 5317a Chemistry tyoon@chem.wisc.edu
<b>Office Hours:</b>	Weekly office hours: Check Learn@UW for time and location
<b>Website:</b>	Learn@UW The Chem 345 Facebook page (linked on Learn@UW)

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### 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

*\*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.*

Recommended:  
Solution Manual for Louden, *Organic Chemistry*

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

#### **Other materials:**

Required:  
“i>clicker” RF personal response device

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

Strongly recommended:  
Molecular model kit

**Course websites:** This course makes extensive use of Learn@UW. Lecture notes, handouts, quizzes, practice exams, keys, 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 specific examples, and help you understand broad themes of chemical reactivity. The lecture notes posted to Learn@UW are meant to supplement the notes that you take during regular attendance; they are not comprehensive and won't replace the lecture itself.

**Discussion sections:** Attendance and participation in discussion sections are required. The main purpose of the discussion is to get guided practice working problems. To get the most out of section, come prepared with specific questions.

**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**

**Examinations:** There will be four midterm exams (100 points each, which will be given during the normal lecture period. Please note that makeup exams will not be given. The final exam is currently scheduled for Thursday, December 19, 2:45pm–4:45 pm. The final will be cumulative and be worth 200 points.

**Quizzes:** There will be weekly quizzes given at the beginning of each discussion section. Each quiz will be worth 4 points towards a possible maximum of 40 points for the semester. Some of the quiz questions will be distributed earlier in the week for you to work out in advance.

**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; 15 points will be awarded for 70% participation; 10 points for 60%, and 5 points for 50%. For technical help, see: <https://tle.wisc.edu/clickers>.

**Homework:** Suggested problems from Louden 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 in groups is strongly recommended. You are encouraged to discuss pre-assigned quiz questions with your classmates.

**Re-grade requests:** Errors in exam grading are rare but, unfortunately, unavoidable in a class of our size. Requests for re-grading must be accompanied by a re-grade request form (available on Learn@UW). 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 is a serious breach of academic integrity.

**Grades:** A maximum of 660 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:	Exam 1	100	Formula 2:	Top three	
	Exam 2	100		midterm exam	
	Exam 3	100		scores:	300
	Exam 4	100			
	Quizzes	40		Quizzes	40
	Clicker points	20		Clicker points	20
	Final	200		Final	300
	<b>TOTAL</b>	<b>660</b>		<b>TOTAL</b>	<b>660</b>

Letter grades are not assigned until the end of the course, and will be assigned according to a historical distribution curved 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 contact Prof. Yoon as early in the semester as possible to ensure sufficient time for appropriate arrangements to be made.

## **V. ACADEMIC MISCONDUCT**

Scientific fields, including engineering and the health professions, cannot function without the strictest standards of personal integrity from their practitioners. My expectations for your academic integrity in Chem 345 are 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 be asking people to place in you throughout your career.

If you observe instances of academic misconduct, you should report them to me or to the TAs. We will take every precaution to protect your anonymity.

Please be aware of UWS 14 Policies regarding academic misconduct. Penalties for cheating in Chem 345 may include 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 quizzes 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)**

<b>Week</b>	<b>Date</b>	<b>Chapter</b>	<b>Lecture material</b>
1	Sep 4 Sep 6	Introduction Ch 16	Syllabus, Class policies, etc. Electrophilic Aromatic Substitution
2	Sep 9 Sep 11 Sep 13	Ch 16 Ch 16 Ch 17	Allylic and Benzylic Reactivity
3	Sep 16 Sep 18 Sep 20	Ch 17 Ch 18 <b>MIDTERM EXAM 1</b>	Aryl and Vinyl Halides <b>IN LECTURE</b>
4	Sep 23 Sep 25 Sep 27	Ch 18 Ch 12 Ch 12	IR Spectroscopy
5	Sep 30 Oct 2 Oct 4	Ch 13 Ch 13 Ch 13	NMR Spectroscopy
6	Oct 7 Oct 9 Oct 11	Ch 18 Ch 18 <b>MIDTERM EXAM 2</b>	Aldehydes and Ketones <b>IN LECTURE</b>
7	Oct 14 Oct 16 Oct 18	Ch 18 Ch 18 Ch 18	
8	Oct 21 Oct 23 Oct 25	Ch 19 Ch 19 Ch 19	Carboxylic Acids
9	Oct 28 Oct 30 Nov 1	Ch 21 Ch 21 Ch 21	Carboxylic Acid Derivatives
10	Nov 4 Nov 6 Nov 8	Ch 22 Ch 22 <b>MIDTERM EXAM 3</b>	Enols and enolates <b>IN LECTURE</b>
11	Nov 11 Nov 13 Nov 15	Ch 22 Ch 23 Ch 23	Amines
12	Nov 18 Nov 20 Nov 22	Ch 23 Ch 27 Ch 27	Pericyclic Reactions
13	Nov 25 Nov 27 Nov 29	Ch 27 Ch 27 <b>THANKSGIVING</b>	<b>NO LECTURE</b>
14	Dec 2 Dec 4 Dec 6	Ch 25 Ch 25 <b>MIDTERM EXAM 4</b>	Carbohydrates <b>IN LECTURE</b>
15	Dec 9 Dec 11 Dec 13	Ch 26 Ch 26 Ch 26	Peptides