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Office hours: Mon. & Wed. 1:15 PM - 2:45 PM. B324A Chem

Note: Piazza is a new online resource being used this semester to answer content questions in as efficient a manner as possible. Please feel free to utilize this resource in addition to going to office hours.

## Course Schedule – Chemistry 345 Summer 2014

<b>Monday</b> <b>June 16</b>	<b>Tuesday</b> <b>June 17</b>	<b>Wednesday</b> <b>June 18</b>	<b>Thursday</b> <b>June 19</b>	<b>Discussion 1</b> <b>Tuesday</b>	<b>Discussion 2</b> <b>Wednesday</b>
Chapter 12 IR Spectroscopy and Mass Spectrometry	Chapter 12/13 Mass Spectrometry & NMR Spectroscopy	Chapter 13 NMR Spectroscopy	Chapter 13 NMR Spectroscopy & Aromaticity	<b>Problem Set 12</b>	<b>Problem Set 13</b>
<b>June 23</b> Chapter 16 Chemistry of Benzene and Its Derivatives	<b>June 24</b> Chapter 16 Chemistry of Benzene and Its Derivatives	<b>June 25</b> Chapter 16/17 Allylic and Benzylic Reactivity	<b>June 26</b> <b>Exam 1</b> <b>Chapters 12 – 16</b>	<b>Problem Set 16 &amp; Exam Review 1</b> <b>Quiz 1 (12, 13)</b>	<b>Problem Set 16 &amp; Exam Review 1</b>
<b>June 30</b> Chapter 17/18 Allylic and Benzylic Reactivity	<b>July 1</b> Chapter 18 Chemistry of Aryl Halides, Vinylic Halides and Phenols	<b>July 2</b> Chapter 19 Chemistry of Aldehydes and Ketones	<b>July 3</b> Chapter 19 Chemistry of Aldehydes and Ketones	<b>Problem Set 17</b> <b>Problem Set 18</b>	<b>Problem Set 19</b> <b>Quiz 2 (17 – 18)</b>
<b>July 7</b> Chapter 19/20 Chemistry of Aldehydes and Ketones	<b>July 8</b> Chapter 20 Chemistry of Carboxylic Acids	<b>July 9</b> Chapter 21 Chemistry of Carboxylic Acid Derivatives	<b>July 10</b> <b>Exam 2</b> <b>Chapters 17 – 20</b>	<b>Problem Set 20 &amp; Exam Review 2</b>	<b>Problem Set 20 &amp; Exam Review 2</b> <b>Problem Set 21</b>
<b>July 14</b> Chapter 21 Chemistry of Carboxylic Acid Derivatives	<b>July 15</b> Chapter 22 Chemistry of Enolates, Enols, and $\alpha,\beta$ -Unsaturated Carbonyl Compounds	<b>July 16</b> Chapter 22 Chemistry of Enolates, Enols, and $\alpha,\beta$ -Unsaturated Carbonyl Compounds	<b>July 17</b> Chapter 22/23 Chemistry of Enolates, Enols, and $\alpha,\beta$ -Unsaturated Carbonyl Compounds	<b>Problem Set 21</b> <b>Problem Set 22</b>	<b>Problem Set 22</b> <b>Problem Set 23</b>

**July 21**  
Chapter 23  
Chemistry of Amines

**July 22**  
Chapter 23  
Chemistry of Amines

**July 23**  
Chapter 23/25  
Chemistry of Amines

**July 24**  
Chapter 25  
Aromatic  
Heterocycles

**Problem Set 23**  
**Quiz 3 (21 – 22)**

**Problem Set 25 &  
Exam Review 3**

**July 28**  
Chapter 27  
Pericyclic Reactions

**July 29**  
**Exam 3**  
**Chapters 21 – 23, 25**

**July 30**  
Chapter 27  
Pericyclic Reactions

**Jul 31**  
Chapter 27  
Pericyclic Reactions

**No discussion**

**Problem Set 27**  
**Quiz 4 (27)**

**Aug 4**  
Chapter 24  
Carbohydrates

**Aug 5**  
Chapter 26  
Peptides

**Aug 6**  
Special Topic  
Organic  
Astrochemistry

**Aug 7**  
**Final Exam**  
Chapters 12, 13, 15 –  
27

**Problem Set 27**  
**Problem Set 24, 26,**  
**& Exam Review 4**

**Problem Set 27**  
**Problem Set 24, 26,**  
**& Exam Review 4**

Course schedule is subject to change. 😊

## Philosophy

To quote one of my best teachers, "All real learnin' is painful." He was a football coach which might have shaped his outlook on teaching and learning chemistry. Over the years, however, I have found a lot of truth in his statement. In challenging learning environments or courses that have high expectations, mastery of the material has required a lot of effort, a lot of toil, a lot of time and a fair amount of pain. Learning is not free and sadly is not available Matrix-style. To move from familiarity to understanding and mastery, in organic chemistry, is going to require a great deal of focus and effort. I promise that by the end of chemistry 343/344/345, you will be a more mature learner, a stronger thinker, and have a much better understanding of chemistry.

Each phase of learning below is important for your success. Do not overlook any of them.

## Lecture

The purpose of lecture is to provide a conceptual framework for you to understand the course material. Key concepts and examples will be highlighted. While many details will be discussed, the focus will be on the big concepts and how the current material connects to past learning and future expectations. Lectures will help define the depth and breadth of the course and will help you understand the course expectations. I will try to always be available in the lecture hall before and after lecture for questions. I cannot cover all of the course material at a sufficient depth in lecture alone. You will need to supplement lecture with study groups, discussion attendance, and textbook reading.

## Discussion

The discussion sections with your TA are critical as part of your learning process. The discussions play many roles all of which serve to deepen your understanding of the course material. You will have a chance to talk to your TA about problem solving strategies, difficult course concepts, and address common misconceptions. Discussion provides a great opportunity to talk about the material. You will learn a lot more if you are engaged in conversations about course content than if your only studying is hiding in cage in depths of the Memorial Library Stacks. Furthermore, your TA's are highly successful organic chemists. This means that they can point out common issues that students struggle with and help you avoid them. They can provide you with learning insights that worked for them and they can help you interpret the textbook and lecture materials in a fairly sophisticated manner. Get the most out of it by showing up, ready to discuss the week's material.

## Textbook Reading

It is quite difficult for most students to understand the course material at the depth needed for a high-level of success without reading the textbook. Loudon's organic textbook is a great book chosen for its clear explanation and great practice problems. I recommend reading each chapter before lecture or immediately following. A thorough reading of the textbook on any topic you are struggling with is critical. The explanations and examples provided will be helpful to your mastery of the material. It will provide more depth and breadth to the course material than I can provide in lecture and should not be over-looked as a valuable tool. I highly recommend working the in-text problems as you go.

***This summer we are piloting a free trial of the online version and online resources for***

*a different organic textbook by Carey. More information will be posted soon. This allows the course to use two different textbooks and the digital resources for the price of Loudon. This is pretty awesome!*

## Office Hours

Your TAs and I are highly concerned about your learning. Unfortunately, there are 250+ of you and we can't reach out to each of you individually and make sure that you are having the success that you are looking for. That's where the office hours come in. In the past, the most successful students took good advantage of office hours on a weekly basis. They came with lists of questions and clearly identified problems that they needed help solving. This led to great discussions and a very effective use of time.

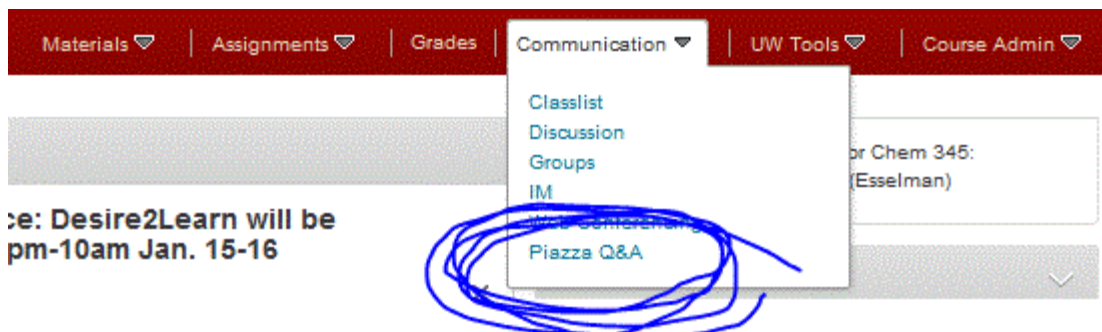
Your TAs will be holding office hours and you are highly encouraged to attend and get some one-on-one and small group help with the problem sets and previous exams. Additionally, the Organic Chem TA office that will be staffed most of the day with TAs of Chem 341/342/343/344/345/346 ready to answer your questions. Feel free to go as often as you like.

## Email

I get a lot of emails, and I lose them in my inbox more than I'd like. In order to help bring your email to my attention, please include Chem 343/344/345 in the subject line of all emails you send me. Email should be limited to logistical, concerns about grades, requests for alternate office hours, or any non-content related course questions. This semester, we are using Piazza (see below) to manage content-related questions. This is great for you as it allows you to get your science-related questions answered by another student, any of 3 TAs and/or myself. This helps to ensure that you'll get a timely response to your question.

## Piazza

Content questions should be directed to Piazza and not sent via email to either the TAs or myself. Content questions received via email will be directed to Piazza. Piazza is a great online resource where you can post questions, post answers to other students' questions, and receive answers to your questions from the TAs and myself. Please remember to be very clear when wording your questions on Piazza. Pictures of structures from ChemDraw are very helpful. Chemdraw is an expensive piece of chemistry software that you have free access. It is a high-quality chemistry drawing program that you can download (see below) and it will allow you to draw structures to accompany your questions. Pictures or scanned images are also okay on Piazza, but you will likely find Chemdraw easy to use to make high-quality organic chemistry drawings. Piazza can be accessed from within Learn@UW by the link shown below.



## **Chemdraw**

To download Chemdraw please follow these instructions:

<http://comphelp.chem.wisc.edu/content/how-download-chemdraw-13>

## **Problem Sets, Textbook practice problems, Previous Exams**

The only way to make sure you are learning at the right depth and pace is to complete the practice problems available. If you cannot transfer what you know to new molecules or new structures, it identifies a gap in your knowledge and understanding. Answer keys are provided to the problem sets and textbook, use these to check your learning. Answer keys are intentionally not provided to some of the previous quizzes/exams. This is done to encourage you to talk to your classmates and instructors about any answers that you are unsure of and to work through problems that you can't simply look up the answer to and shortcut the thinking/learning process.

## **Classmates**

Nothing reveals your misconceptions and misunderstandings regarding organic chemistry than trying to explain something in words. If you are working with one or more classmates on a regular basis, both of you will benefit from the opportunity to talk about organic chemistry. Helping others through material is a great way to take your own learning of a concept from superficial to mastery.

Additionally, there are plenty of other resources from the UW-PLA, free tutoring options, and paid tutoring options. Most importantly, find a way to master the material and have success.

## Chemistry 345 Grade Information

There are 600 points available in this course. There are four 25 pt quizzes, three 100 pt exams, and one 200 point final. No points will be awarded for the problem sets or attending class. No exams or quizzes will be dropped; you must take them all at the regularly scheduled time unless you have a university course conflict. All points have equal value. The final letter grades based upon 600 course points will reflect the historic averages and grade distribution of Chem 345 with a course GPA near 2.74.

25 pts. Quiz 1 Discussion

**100 pts. Exam 1**

25 pts. Quiz 2 Discussion

**100 pts. Exam 2**

25 pts. Quiz 3 Discussion

**100 pts. Exam 3**

25 pts. Quiz 4 Discussion

**200 pts. Final Exam**

There are NO makeup quizzes. You must attend your scheduled discussion on the dates of the quizzes.

## Grading Philosophy

Grades are important to you, to me, and to the university and grade assignments must reflect achievement and learning. How that is measured and what achievement looks like are issues that are up for debate. I consider the exams and quizzes in this course to be reasonable markers of achievement and learning. Certainly, there are better/alternate methods for assessing student learning, though none of which seem overly practical in a course that serves > 300 students. The final exam counts for 200 of 600 course points weighting it double the other exams or the quiz total. This favors students who have improved in their understanding and preparation as the course progresses. I endeavor to write exams that challenge students at all levels of learning and provide a wide grade distribution. My goal is to have no one be perfect on the entire exam, at least one student provide a perfect answer to each question, and everyone demonstrate the learning that they have achieved. I will always try to separate those that are trying to memorize patterns or use mnemonic devices from those who understand the content in terms of reactivity, structures, molecular orbitals, pKa's, etc.

Every semester, I get a lot of emails about grades many of them suggesting that a better grade is desired than was assigned. Often these emails include a significant misconception, in my mind, about how grading is supposed to work. Grading in my lecture of Chem 343/345 is not about any of the following and are not considered as rationale for wanting/deserving a better grade than what you have earned:

- 1) Effort/Hard work
- 2) Attitude toward organic chemistry
- 3) Attendance of office hours, lecture, or discussion
- 4) How much your TA or I like/dislike you
- 5) Needing a better grade for {insert school type here} school admissions
- 6) Wanting to take a course for which Chem 343/345 are prerequisites

Unfortunately, instructors and students have helped create a general state of confusion about how grades are assigned, generally. Setting a certain % grade for an A/B/C is entirely artificial and is based upon a few assumptions. Firstly, it assumes that all assignments are of equal difficulty and can be compared directly. This is certainly not the case in this course as the mean and standard deviation vary significantly from assignment to assignment. Secondly, it assumes that there is some universal standard that should be attained for a particular grade. Furthermore, without intervention it often creates grade distributions in difficult classes with GPA's that are much lower than desired or reasonable. This forces odd adjustments to be made to scores to make them *fit* with the instructor's desired grade distribution. This seems artificial and doesn't help students gauge their performance in light of mysterious adjustments. (Often times, people misuse the word *curve* here to mean a positive adjustment in everyone's score.)

A much simpler approach is to allow the scores to fall where they do from assessment to assessment and to determine each grade relative to the mean in units of standard deviation. This is an imperfect approach, but far more instructive than simply looking at raw scores or % scores without considering the mean and standard deviation. In order to do this, simply use the formula below and apply an actual (simple) curve.

normalized score = (your score - average score)/(standard deviation)

If your score is +1, you rocked that assessment! If your score is near zero, you have achieved an average grade on that assignment (~ BC in Chem 343/345). If you have a score of -1, your achievement is not where it needs to be.



**Required:**

Organic Chemistry 5th edition by Marc Loudon

**Recommended:**

Solution Manual Organic Chemistry 5th edition

(Additional solutions not in the Solution Manual are posted on Learn@UW)

Molecular Model Kit

Several model kits are available online, at the UW Bookstore, and from AXΣ in the Mills Street Atrium of the Chemistry Building. It is not important which model kit you acquire, none of them are perfect and all are helpful. (I like one of the more expensive one simply for the nice snap/pop sound it makes when in use.)

ChemDraw ([ChemDraw 13 Download Instructions](#))

As a UW student, you get ChemDraw free! This is pretty awesome! I highly recommend downloading the software and using it whenever you are sending an email question to a classmate, myself, or a TA. It is the same software that we use to draw all of the molecules for your problem sets, quizzes, and exams.

## **Folks, please don't cheat. Cheating is bad; cheating is sad.**

Dealing with academic misconduct is the most painful/sad/annoying part of my job.

Historically in Chem 343/345, penalties have ranged from a zero on the related-work and a letter on file with the Dean of Students office to failure/removal from the course with larger UW Dean's office penalties. The TAs and I had to deal with two cases of academic misconduct last year and it was pretty unpleasant and heartbreaking all around. Out of respect, for yourselves, each other, and your instructors please behave in an appropriate manner with regards to all of the assessments.

### [UW Dean of Students Office - Academic Integrity](#)

From my experience, the two most common forms of academic misconduct in this course are related to re-grades and sharing information about quizzes/exams. Here are some general thoughts and suggestions on the topic... (no particular organization or forethought)

- 1) Do not talk to people about the quiz if they haven't taken the quiz.
- 2) Do not turn in work or thoughts that aren't your own.
- 3) Looking at someone else's exam or notes you brought in or whatever is bad, very bad.
- 4) If it feels like you might be doing something icky and dishonest; you may well be, try doing something else instead.
- 5) Do not change your answers on your exam and ask for a re-grade. You might think I'm stupid and I might be... but I'm not that stupid.
- 6) When you come to the exam or quiz, sit far enough away from anyone else and in a posture that no proctor can think you are cheating. Make sure all of your stuff is in airplane mode, like your phones, computers, purses, backpacks, etc... If all your stuff is put away, shut down, zipped up, and not connected to the internet, so no one can think you're trying to cheat.
- 7) In the words of one of your classmates from a previous semester about sharing exam related information, "It wouldn't be moral and since this class is curved, revealing knowledge of the exam wouldn't be beneficial to my grade either."
- 8) Cheating to gain a few points is not worth the possible repercussions. I'm sure of it. I've checked.