CHEMISTRY 345 Intermediate Organic Chemistry
Section 2 – Fall 2018
Professor Ive Hermans

Canvas Course URL: https://canvas.wisc.edu/

Course description: Chemistry 345 is the second course of a two-semester sequence in organic chemistry. It covers diverse themes in organic reactivity, building on a foundation provided in Chemistry 343. Chemistry 341 does not satisfy the prerequisite for 345.

Requisites: Grade of C or better in CHEM 343

Course designations and attributes: Intermediate level, physical science breadth, counts as L&S credit
Instruction mode: classroom instruction

Credits: 3
How credit hours are met: This class meets for three 50-minute lectures and one 50-minute discussion each week. The credit standard for this course is met by an expectation of a total of 135 hours of student engagement with the course learning activities (at least 45 hours per credit), which includes class attendance, reading, studying, problem sets, and other student work as described in the syllabus.

Instructor and TAs - Contact Information and Office Hours

Ive Hermans (**Lecture 2** Tuesdays & Thursdays at 9:30 AM in Educational Science 204)
Office: Room 6311 Chemistry
Office Hours: Monday 10:30 AM and Wednesday 1:00 PM (or after appointment) in Rm 6311
email: hermans@chem.wisc.edu
Please indicate in any email exchange that you're enrolled in chem345 and mention your section number and the name of your TA.

Teaching Assistants
You are encouraged to attend the office hours of any/all of the organic chemistry TAs (not just the TA responsible for your section), which are held in B317 Chem. All of the TAs listed below

are associated with Chem 345 lecture 2 and are likely to know exactly what is going on in your organic course.

Office Hours:
Andrew Owen (aowen4@wisc.edu): Wednesday 9:55 AM and Wednesday 11:00 AM
Melissa Cendejas (cendejas@wisc.edu): Tuesday 2:25 PM and Friday 8:50 AM

Meeting Time	Friday
12:05 – 12:55	Sec 424 – (B379) Melissa Cendejas
1:20– 2:10	Sec 425 – (B379) Melissa Cendejas Sec 426 – (Sterling 2333) Andrew Owen
2:25 – 3:15	Sec 421 – (2373) Melissa Cendejas Sec 427 – (Sterling 2333) Andrew Owen
3:30 – 4:20	Sec 422 – (2311) Melissa Cendejas Sec 428 – (Sterling 2333) Andrew Owen
4:35 – 5:25	Sec 423 – (2373) Andrew Owen

Proper use of discussion sections:

Make mistakes. People learn from mistakes. Be vocal. Go to the front of the board and write your answers. If they are correct, congratulations. If they are incorrect, all the better as it gives an opportunity to learn something and help out your fellow classmates. Remember, you are only really judged by your exams. Not your peers. Do not be afraid making mistakes. Better to make them in discussion than on an exam. There are many correct answers in organic chemistry (and many more incorrect ones). The TA's are there to give insight on the nuances of organic chemistry.

Get to know your fellow students. Set up study sessions with them. Try problems from problem sets independently and then consult on the answers before looking at the answer key. Try teaching each other.

A complete overview of the office hour schedule for the organic TAs can be found here: https://www.chem.wisc.edu/deptfiles/OrgLab/handouts/Organic_TA_Office_Hours_Fall_2018.pdf (will be updated when needed).

Textbook
Organic Chemistry, 6th Ed., Marc Loudon
Strongly Recommended: study guide and molecular models

Chemistry 345 Learning Outcomes
Students will understand the role of spectroscopy and spectrometry in organic structure elucidation and be able to utilize spectra to analyze pure samples and product mixtures. Students will be able to use the electronic and molecular structure of organic molecules to predict and rationalize their reactivity.

Students will be able to use molecular orbitals, potential energy surfaces, and electron-pushing reaction mechanisms to describe chemical reactivity with an emphasis on the reactions of aromatic compounds, pericyclic reactions, and the reactions of carbonyl-containing compounds.

Students will be able to propose multi-step synthetic schemes to generate complex organic molecules from simple starting materials using studied reactions.

Grading and Grading Philosophy
There are 550 points available in this course. There are three 100 pt mid term exams (during regular class times), and one 200 point final. Additionally, your positive participating in discussion is worth 50 pts.

As a general rule, no exams will be dropped; you must take them all at the regularly scheduled time unless you have a justified conflict. All points have equal value. The final letter grades based upon 550 course points will reflect the historic averages of Chem 345 with a course GPA near 2.8.

100 pts. **Exam 1** (October 9)
100 pts. **Exam 2** (October 30)
100 pts. **Exam 3** (November 20)
200 pts. **Final Exam** (December 20, 2:45-4:45)
50 pts. **Discussion**

Exams will be graded and returned at the next discussion section. PLEASE, PICK THEM UP AND LOOK AT THEM. MAKE SURE THE SCORES WERE ENTERED CORRECTLY AND THAT YOU UNDERSTAND WHAT YOU MISSED.

Exam regrade policy: Mistakes in exam grading will occasionally be made. You will have one week after exams are returned to submit the entire exam for regrading. Keep in mind, since mistakes may or may not be in your favor, the exam grade can actually be lowered. All decisions on the regrades are final. DO NOT UNDER ANY CIRCUMSTANCES CHANGE AN ANSWER AND SUBMIT IT FOR A REGRADE. THIS IS ACADEMIC MISCONDUCT AND WILL BE DEALT WITH HARSHLY. Out of principle, we refuse any exam regrade requests that use the word “deserve.” Argue based on facts, not emotions.

Regrade submittal procedure: inform your TA that you are submitting an exam for a regrade. Write on the exam score sheet which problem needs to be regraded and why. DO NOT CHANGE ANYTHING ELSE. Hand the exam back to your TA within one week.

Any student that falls just below a cutoff will have their final exam automatically regraded.

Exam Penalties:

Though technically, the regular exams are worth 100 points apiece and the final exam is worth 200 points, it is possible to score a negative value on the exam. There are four exam penalties that you should be aware of and avoid at all costs. CONSIDER YOURSELF WARNED AND DON'T COMPLAIN WHEN IT HAPPENS TO YOU.

Texas Carbon Penalty (TCP): If one of your answers has a carbon drawn that has five bonds to it, that is an affront to organic chemistry. Such a blasphemous creation will result in a five point penalty in addition to missing any points on that question.

Name Penalty: The most important question on any exam is the one that has you fill in the following blank: Name:_____ Yet, the number of people that do not do this is staggering. (8% of the exams last spring left this blank or missed it). There is no excuse for this.THIS IS YOUR WARNING! There will be a five point penalty for not writing your name on the exam.

TA and section penalty: Please write your section number and the name of your TA. There will be a five point penalty for not writing the name of your TA and/or section number.
Time Penalty: Writing on the exam before the TAs say start, or after time is called can be a five point penalty.

Contact your TA and me as soon as possible if you are not able to make an exam due to illness, religious holidays, or any other justified reason.

Letter grade

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 (such as 80 % = **B**) 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 allows us to attempt to write the best exam that we possibly can that advances learning, probes misconceptions, and highlights areas of deficiency. 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 (~ **B**). If you have a score of -1, your achievement is not where it needs to be. ***Do not attempt to use percentage scores to estimate your current or projected course grade.***

Historic grade distribution for 345:
A: 22% ; AB: 10% ; B: 28% ; BC: 9% ; C: 22% ; D: 5% ; F: 3%

Academic Misconduct

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

Dealing with academic misconduct is the most painful/sad/annoying part of our job. Historically 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 us had to deal with several 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 our experience, the two most common forms of academic misconduct in this course are related to re-grades and sharing information about exams. Here are some general thoughts and suggestions on the topic... (no particular organization or forethought)

1) Do not talk to people about the exam until after the key is posted.
2) Looking at someone else's exam or notes you brought in or whatever during exam is bad, very bad.
3) If it feels like you might be doing something icky and dishonest; you may well be, try doing something else instead.
4) Do not change your answers on your exam and ask for a re-grade.

5) 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.
6) 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."
7) Cheating to gain a few points is not worth the possible repercussions. We're sure of it. We've checked.

Study tips:
After each lecture, start the problem set. Do not wait for the answer key to be posted to start the problem set. Between 4-8 hours after each lecture, recopy your notes for that lecture. Look for the patterns.

Organic chemistry is very cumulative. Material on exam I might come back on exams II, III, IV, and the Final. Likewise, with subsequent topics. The problem sets will not only cover current material but past material as well.You may feel pressure after an organic exam to stop studying ochem and focus on other classes. I suggest you resist this urge, as once you fall behind it is very difficult to catch up.

The exams are going to be based on the material from the lectures, lecture notes, problem sets, and discussions. The textbook is there to help you understand the material. I strongly suggest that you read the relevant pages either before or after lecture.
Make flash cards. Carry these with you wherever you go. Flip through them throughout each day.

A very good way to study is to study in groups. Multiple problem sets will be available to work on along with several practice exams. I suggest you form groups to study in. You can go about this by talking to classmates in discussion, etc... The sooner you set up these groups the better off you will be.

The best way to understand organic chemistry is constant practice. The TA's and I will do our best to provide quite a bit of practice in the form of problem sets and practice exams. Should you desire more practice, there are the problems at the end of each chapter in the book as well as multiple websites. Should you find a discrepancy in what the TA's, book, internet, or myself, please bring it to our attention immediately. It may be a case of a subtlety, an outright error, or an over generalization. Regardless, we'll try to explain the discrepancy.

Accommodations for Students with Disabilities
If you require special accommodations, such as specified in your McBurney VISA, please talk to me as soon as possible. In general: we cannot help you unless we know.

McBurney Disability Resource Center syllabus statement: "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA."

Diversity and Inclusion

Institutional statement on diversity: "Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." https://diversity.wisc.edu/

september 2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
27 August	28	29	30	31	1 September/2
3	4	5	6 **Lecture 1:** Introduction InfraRed (Chapter 12)	7	8/9
10	11 **Lecture 2:** InfraRed and Mass Spec (Chapter 12)	12	13 **Lecture 3:** NMR (chapter 13)	14	15/16
17	18 **Lecture 4:** NMR (chapter 13)	19	20 **Lecture 5:** Benzene & Derivatives (Chapters 12-16)	21	22/23
24	25 **Lecture 6:** Benzene & Derivatives (Chapters 12-16)	26	27 **Lecture 7:** Benzene & Derivatives (Chapters 12-16)	28	29/30
1 October	2	3	4	5	6/7

october 2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
24 September	25	26	27	28	29/30
1 October	2 **Lecture 8:** Allylic and Benzylic Reactivity (Chapter 17)	3	4 **Lecture 9:** Allylic and Benzylic Reactivity (Chapter 17)	5	6/7
8	9 **EXAM 1**	10	11 **Lecture 10:** Aryl Halides, vinylic Halides & Phenols (Chapter 18)	12	13/14
15	16 **Lecture 11:** vinylic Halides & Phenols (Chapter 18) Carbonyl chemistry (Chapter 19)	17	18 **Lecture 12:** Carbonyl chemistry (Chapter 20)	19	20/21
22	23 **Lecture 13:** Carbonyl chemistry (Chapters 20-21)	24	25 **Lecture 14:** Carbonyl chemistry (Chapter 21)	26	27/28
29	30 **EXAM 2**	31	1 November	9	10/11

november 2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
29 October	30	31	1 November **Lecture 15:** Enols, eonolates and unsaturated carbonyls (chapter 22)	2	3/4
5	6 **Lecture 16:** Enols, eonolates and unsaturated carbonyls (chapter 22)	7	8 **Lecture 17:** Amines (chapters 22-23)	9	10/11
12	13 **Lecture 18:** Amines (Chapters 22-23) & Aromatic heterocycles (chapter 25)	14	15 **Lecture 19:** Aromatic heterocycles (chapter 25)	16	17/18
19	20 **EXAM 3**	21	22 **THANKSGIVING: No Class**	23	24/25
26	27 **Lecture 20:** Pericyclic Reactions (chapter 28)	28	29 **Lecture 21:** Pericyclic Reactions (chapter 28)	30	1 December/2
3	4	5	6	7	8/9

december 2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
26 November	27	28	29	30	1 December/2
3	4 **Lecture 22:** Carbohydrates (chapters 24-26)	5	6 **Lecture 23:** Peptides (chapters 26-27)	7	8/9
10	11 **Lecture 24:** TBD	12 **Last day of class**	13	14	15/16
17	18	19	20 **Final Exam** **2:45-4:45** **Location: TBD**	21	22/23
24	25	26	27	28	29/30
31	1 January	2	3	4	5/6