

CHEM 345: Intermediate Organic Chemistry

Contact Information

Matt (Doc) Bowman
262-2519

Chemistry 5232

bowman@chem.wisc.edu

**3 credits: Lecture 50 min three times per week
Discussion 50 min once per week**

Lecture 5:

MWF 11:00-11:50 AM

Room: Chemistry 1361

Office Hours

Starting February 2

Wednesdays 1:30-2:20 PM Computer Sciences 1207

Mondays 2:30-5:20 PM Noland 342

(or by appointment)

Teaching Assistants

Dr. Aaron McCoy

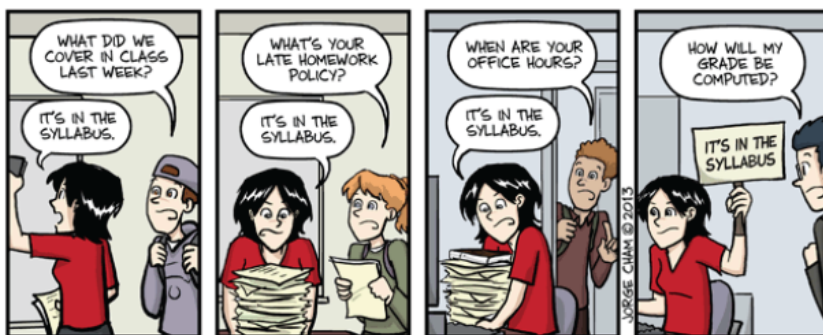
amccoy@chem.wisc.edu

Nicholas Walters

nwalters@.wisc.edu

Piled Higher and Deeper by Jorge Cham

www.phdcomics.com



IT'S IN THE SYLLABUS

This message brought to you by every instructor that ever lived.

WWW.PHDCOMICS.COM

title: "It's in the syllabus" - originally published 5/10/2013

TA Office Hours

TA office hours on the day following exams will be cancelled as the TA's will be grading then.

TA office hours are held in Chemistry B317 (Organic TA Office)

Aaron McCoy

Mondays 12:05-2:10

Thursdays 11:00-11:55

Nicholas Walters

Mondays 9:55-10:45

Wednesdays 9:55-10:45

Matt's Schedule:

Matt Bowman this spring is lecturing for two courses Chem 343 and Chem 345. There are 220 students in 343 and 200 students in 345. Matt will try to keep everything straight, but will not remember necessarily which student is in which lecture. These lectures are back to back in the same lecture hall. Because he has to split his mind to deal with each class, he might not be completely there. There will be weeks in which there will be an exam happening for both classes. At which point, any vestiges of his sanity will disappear and there will be drool, *lots and lots of drool*. (His sanity is not being helped much right now as Matt Bowman is writing in the third person). Please state in any email correspondence with him whether you are in 343 or 345. The answer to your questions may differ significantly. Please be patient. If he does not respond within 12 hours, try again. There will be separate office hours for 343 and 345. Please come to the correct one.

Textbook: *Organic Chemistry*, 5th Ed., Marc Loudon

Quite a few of my course evaluations in the past stated that they never read or opened the book. I do not recommend this course of action, but I do understand it. I follow a different order than the textbook, but a majority of the material from Chapters 12-13,16-27, and some reactions and concepts outside the book will be covered. The course schedule has page numbers containing relevant information from the text along with key words that you can use in an index of any organic textbook for other explanations. Copies of the textbook are on reserve in the chemistry library for you to read. Instructors of Chem 344 may expect you to have this textbook for that lab course as well. Exams and quizzes are based on the material from lectures, power point tutorials, video lectures, discussion sections, and problem sets. The book is there to provide alternative explanations/approaches to help you understand the material covered.

Video lectures

Learn@UW will host a variety of video lectures. These are typically 5-10 minutes long. They are there to highlight important concepts or clarify points in organic chemistry. I am told that the VLC media player works quite well with these videos if they are downloaded first.

Problem sets

There will be a problem set for each lecture day except for the day of an exam or the day preceding an exam. These problem sets will not be graded and are there to help you out. Keys will be available by the next lecture day on Learn@UW.

Practice exams

I will make at least three practice exams available for each exam. The exams will be very similar to the practice exams in terms of directions. Answer keys for these exams will also be available. **DO NOT SIMPLY LOOK AT THE KEY. ATTEMPT THE PRACTICE EXAM FIRST. HAVE ANOTHER STUDENT IN THE CLASS GRADE IT AS YOU GRADE THEIRS. DISCUSS DISCREPANCIES AND ONLY THEN LOOK AT THE KEY.**

Exams:

There are four regular exams plus the final exam. Each regular exam will be worth 100 points. The regular exams will be Monday evening exams held from 7:15 to 8:45 pm in a lecture hall to be posted on learn@UW on a handout called Exam Information Sheet. Please check your schedules for potential conflicts. The dates are February 9, March 2, March 23, and April 27. Please notify me **ASAP by email** of any conflicts so alternative arrangements can be made. **Notifying me the week of an exam is NOT ADVISABLE as I will be cranky.**

You may not drop any exam.

The final exam is worth 200 points and cannot be dropped. It will take place on Thursday, May 14 from **5:05 pm to 7:05 pm**. Unfortunately, this date is set by the University and I can only grant makeup exams in a VERY limited manner such as two exams within a 24 hour period. Please do not ask for a makeup exam due to airline tickets going home for the summer. I'm afraid that is not listed as a valid reason.

Exams will be graded and returned at the next lecture. **PLEASE, PLEASE, PLEASE PICK THEM UP. 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.**

Regrade submittal procedure: Email Matt Bowman 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.** Place the exam in Matt Bowman's mailbox in Chemistry 1146.

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.**

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.

Acid-Base Arrow Question (ABAQ): To describe what is happening in a reaction, chemists used the curved arrow notation. This shows the movement of electrons. The most important example of this is in acid-base reactions. I will show you the answer to this question along with examples of wrong answers. **THIS IS THE ONE OF THE MOST FUNDAMENTAL CONCEPTS IN ORGANIC CHEMISTRY.** It is used in 343, 345, 344, biochemistry, etc... If you cannot answer this question, then -5 points.

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 are staggering. (8% of the exams last semester left this blank or missed it).

EIGHT PERCENT!!!!!!!!!! There is no excuse for this. So, this will be an escalating penalty that **CANNOT** be appealed.

- 1.) You will need to write your name (First and Last) on the name line appearing on the scoresheet and the page with problem one.
- 2.) You will need to circle your TA's name on the scoresheet.
- 3.) You will need to write the first two letters of your last name (legibly) in a box. (**NOT INITIALS**)

You must do all three of these to avoid the Name penalty. This penalty will be -2 pts for the first exam, -4 pts for the second, -6 pts for the third, -8 pts for the fourth, and -10 pts for the final exam.

Time Penalty: Writing on the exam before the TA's say start or after time is called can be a five point penalty.

After that whole exam penalty rant, here is a photo of a cat.



Participation Points:

Part of your grade will be determined by participation. You can have a maximum of 30 participation points. With that said, there will be more than that many possible. I estimate about 60 participation points will be available, but again only 30 will count. There are a couple of ways that you can earn a participation point. The participation points will only be tallied on May 13 and not before then. Last semester, when the tally reached 30 points, people stopped participating. Hence, no tallying until the end of the semester.

iClickers: From time to time, there will be iclicker questions in lecture. If you get it right, you will receive a participation point. If you get it wrong then you will receive a half point. ***You must register your iclicker on learn@UW. I will send you an email if your iclicker is not registered.***

Turn-In Problems: From time to time in the problem set, there will be a turn in problem. You will get a point if you attempt it and turn it in to Matt's mailbox in Chem 1146 by the specified date and time. I will not announce a head of time if a turn in problem is in the problem set. So, it may be in your best interest to thumb through them when they are handed out. After removing names, some of these answers will be selected, scanned and posted. Later on, I will post why these were chosen and point out the common mistakes and misconceptions.

Electronic Homework: If you are a fan of electronic homework, then this option will be available to you, but it is not required. There will be a series of problems each week. You need to get at least half of them correct (you can attempt these problems multiple times) to get the participation points. Each weekly problem set will be worth one participation point (provided it is accomplished by the deadline). It costs \$38, but I want to stress that it is not required. There will be plenty of other opportunities for participation points.

Discussion Attendance: Attending your **registered** discussion section is worth one point each day you attend. Going to a different section does not count. This is to discourage squatters.

Discussion Pop quizzes: The TA's will from time to time give a pop quiz without any warning. These can be worth 0,1, and 2 participation points. Please do not abuse the participation point system. Going to an earlier section seeing the quiz and then taking it in a later session or sharing the quiz questions with another student is academic misconduct.

Academic Misconduct

You are all adults. There is no reason to cheat, but plenty of reasons not to. An **F** in the course is one of many reasons. Cheat sheets, notes, textbooks, someone else's paper, iPods, cell phones, a crystal ball bearing the disembodied spirit of the Great Organic Chemist R. B. Woodward, etc... are prohibited from the exam. Use of these prohibited materials during an exam will result in a zero for the exam score. A zero on an exam due to cheating cannot be dropped. You will only be allowed pencils/pens and model kits for the exams.

A percentage of the exams will be photocopied. Should an answer be changed and submitted for a regrading, academic misconduct has occurred and the perpetrator will receive an F in the course and be reported to the Dean's office.

Since it is possible that not all students will take the exam at the same time, it is theoretically possible for some students to receive advance knowledge of a quiz/exam. Students leaking test/quiz questions to other students that have not taken the exam is also regarded as academic misconduct and shall be dealt with accordingly.

I have been advised by the staff (some of them legal staff) that I cannot use pepper spray in dealing with wandering eyes. I will try to remember to remind the TAs proctoring the exams of that advice. If the TAs suspect anyone of this condition, they will announce for everyone to keep their eyes on their paper. If the problem persists, the TAs have the discretionary power to move any student suspected during an exam. **You must be above reproach.** Exams of adjacent students will be examined, and should there be ample evidence, lower exam scores including zeroes will be given to the perpetrator. Please fight against wandering eyes. Please shield your paper the best you can to remove any temptation from others.

DO NOT TRY TO CHEAT. I have failed students in the past and I will not hesitate to do so this semester. I have no patience or respect for those that cheat.

Study tips

Between 1-4 hours 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. Once you start, you cannot stop. (Oh and you need to start right away). Material on exam I will be tested again 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.

In the course schedule, the relevant page numbers from the text are listed. The exams are going to be based on the material from the lectures, lecture notes, problem sets, and discussions. The text 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. If you wish a classroom to meet in, I can see about reserving one for you.

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.

Discussion Sections

Due to the generous funding by the Madison Initiative for Undergraduates and the College of Letters and Science, we are able to offer discussion sections. There is a lot of material to cover, and little time to cover it. Sometimes, what I can briefly cover in the lecture will be better covered in your discussion section. The TAs in this course have experience in teaching organic chemistry, through labs, discussion sections, and tutoring. They may have a different way of looking at a topic. As a result, if you do not understand something from me, you may understand it from them. All discussion sections are held in the chemistry building.

Section 471 Fridays	12:05-12:55	2385	Aaron McCoy
Section 472 Fridays	1:20-2:10	2377	Aaron McCoy
Section 473 Fridays	2:25-3:15	2307	Aaron McCoy
Section 474 Fridays	3:30-4:20	2307	Aaron McCoy
Section 475 Fridays	1:20-2:10	B383	Nicholas Walters
Section 476 Fridays	2:25-3:15	B383	Nicholas Walters
Section 477 Fridays	3:30-4:20	2373	Nicholas Walters
Section 478 Fridays	4:35-5:25	2373	Nicholas Walters

Office hours on Tuesdays following exams are cancelled. Instead, Help Centers will be organized that are focused on specific topics.

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.

Improper use of discussion sections:

Just sitting there.

Additional Help

In addition to the TA's and my office hours, there are a couple of places where you can find assistance.

The Organic TA Office is in room B317. There is a schedule posted outside the door of various TA's and when they will be available to help you. Feel free to ask any of them for help even if they are not a TA for Chem 343.

Alpha Chi Sigma Chemistry Fraternity has offered tutoring for chemistry classes in the past. Please contact them about their current help sessions.

GUTS offers tutors as well. They can be contacted at:
Student Activity Center
Office #4413
333 E Campus Mall
Madison, WI 53715-1380
Phone: 608-263-5666
E-mail: guts@rso.wisc.edu
<http://guts.studentorg.wisc.edu/>

There are also private tutors available. The General Chemistry Office (Room 1328) has a list of tutors and prices. If you do work with a tutor, please let them know that I post notes, problem sets, practice exams, and tutorials on Learn@UW. Anyone can access the Learn@UW Chem 343 site by using the visitor login. They should go to learnuw.wisc.edu and click on visitor login.
USER NAME: **orgchem.pseudo**
PASSWORD: **orgchem.pseudo**
They will be able to access any handouts using that login.

JANUARY 2015

Chem 345

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	Page numbers are from Organic Chemistry 5th edition Marc Loudon		1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20 Classes Begin	21 NMR Chemical Shift and Integration Pg 578-635, 744-750	22	23 NMR Coupling/Splitting Pg 578-635, 744-750	24	25
26 NMR Coupling/Splitting Pg 578-635, 744-750	27	28 Grignards Sodium borohydride Pg 914-917	29	30 Cyanohydrin Pg 907-909	31	
		NOTES:				
		Lectures are from 11:00-11:50 44 days		Discussions are on Fridays		

FEBRUARY 2015

Chem 345

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
						1
2 Hydrates, Hemiacetals, Acetals Pg 1183-1185, 910-912, 921-924	3	4 Hydrates, Hemiacetals, Acetals Pg 1183-1185, 910-912, 921-924	5	6 Imine Pg 926-929	7 SPOT Checks Union South 4-7 PM	8
9 Exam I Review Exam I 7:15-8:45	10	11 Wittig Reagents Protecting groups Pg 933-936, 925-926	12	13 Acyl Transfer Rxns Carboxylic Acid Derivatives Pg 1283-1292		15
16 Esterification Pg 1283-1292 Acid Chlorides Pg 970-974	17	18 Amides Pg 1004-1022	19	20 Amide coupling Pg 1283-1292	21	22
23 Irreversible Reactions: Grignards, LAH Pg 1022-1032	24	25 Nitrile Chemistry Pg 1025-1027, 1280, 1026	26	27 Rearrangements Diazomethane Baeyer-Villiger Beckman	28	Spot Checks Union South 4-7 PM
		NOTES:				
Spot Checks are a chance to bring in completed practice exams for Matt to look over. There are many correct answers (and many more incorrect ones). We cannot put every correct answer on an answer key, so this is a chance to see if your idea is right or why it is not.						

MARCH 2015

Chem 345

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
						1
2 Exam II Review Exam II 7:15-8:45	3	4 EAS Deuteration Halogenation Pg 750-776	5	6 EAS Deuteration Halogenation Pg 750-776	7	8
9 EAS Friedel-Crafts Pg 750-776	10	11 EAS Nitration Pg 750-776	12	13 EAS Nitration Sandmeyer Pg 1138-1142, 1146-1147	14	15
16 Sulfonation Clemmenson, Wolff- Kishner Pg 931-932, 755-756	17	18 Nucleophilic Aromatic Substitution Pg. 1234-1240	19	20 Benzylic and Allylic halogenation Pg 793-798	21 SPOT Checks Union South 4-7 PM	22
23 Exam III Review Exam III 7:15-8:45	24	25 Advanced Organometallics Suzuki, Heck Pg 831-835	26	27 Advanced Organometallics Grubbs Pg 831-835	28	29
30 SPRING BREAK	31 SPRING BREAK	NOTES: Drop Date is March 20				

APRIL 2015

Chem 345

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		1 SPRING BREAK	2 SPRING BREAK	3 SPRING BREAK	4	5
6 Aldol Tautomerization Pg 1047-1072	7	8 Aldol Tautomerization Pg 1047-1072	9	10 Claisen Pg 1072-1091 Decarboxylations Pg. 976-977	11	12
13 Michael Robinson Annulation pg 1092-1099	14	15 Mannich	16	17 Umpolung Benzoin Condensation Dithiane Reactions	18	19
20 Cuprates Enolate Activation Pages 1084-1091, 1100-1105	21	22 Rearrangements Hoffmann Curtius Pg 1152-1153	23	24 Enamine Carbohydrate Game Pg 1186-1187	25 Spot Checks Union South 4-7 PM	26
27 Exam IV Review Exam IV 7:15-8:45	28	29 Bromination Pg 793-798, 1057-1063	30			
		NOTES:				

MAY 2015

Chem 345

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1 Pericyclic Reactions Cycloadditions Diels-Alder Pg 1333-1365, 690-700	2	3
4 Pericyclic Reactions Electrocyclic Ring reactions Pg 1333-1365	5	6 Pericyclic Reactions Sigmatropic Rearrangements Pg 1333-1365	7	8 Last Class Day Review	9	10
11	12 Spot Checks Union South 2-6 PM	13 Spot Checks Union South 2-6 PM	14 Chem 345 Final Exam 5:05-7:05	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
		NOTES:				

Add these numbers together:

946251.074373

9475780.400

Chem 345: Survey

Please answer the following questions so I can adapt Chem 345 to better suit your needs. Please turn this page in to Matt Bowman's mailbox in Chemistry 1146 by January 31.

What is your year? (Freshman, Grad Student, Returning Adult, etc...)

What is your major?

What do you hope to get out of this class? (Besides a good grade)

When is the ideal time for office hours (day and time)?

Do you learn a lot from textbooks?

Who was your 343 instructor?

What other classes are you currently enrolled in?

Have you found electronic homework to be helpful in your other classes?