
CH 320N Iverson

Spring 2024

Organic Chemistry, Part II

Unique Number: 50080

TTh 11:00 - 12:30, Welch 2.224



Teaching Assistants: Qifan Xiao, Rosalie Doerksen, Matt Dixon, Hannah Campbell, Andrei Popov, Hannah Wendlandt, Cole Williams

Course Websites (There are two of them):

<http://iverson.cm.utexas.edu/courses/310N/Index.html><https://utexas.instructure.com/courses/1352189>

<https://utexas.instructure.com/courses/1379086>

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Welcome

Organic Chemistry II

Gateway to understanding the
molecular world

Almost everything we associate with modern life is the result of our ability to make and break covalent bonds in even complex molecules. This is true whether we think about how we produce energy, the pharmaceuticals that are the backbone of modern medicine, or the materials that make up almost every product you buy and use, including technology. It all is based on making and breaking covalent bonds in strategic ways. And it doesn't stop there. Understanding organic chemistry is the foundation upon which a strong understanding of biochemistry is built.

The POINT of this class is two-fold:

1. You will learn how to synthesize complex molecules from simpler ones by understanding how to make and break covalent bonds, especially carbon-carbon bonds.
2. You will learn how to understand the properties and reactions of the organic molecules that make up life on this planet.

Everything we will learn applies to one or both of these overarching themes.





Catching the OChem II Wave

You need to LEARN and UNDERSTAND the material, **DO NOT memorize things or try to simply reproduce patterns based on going over old exams again and again.** The focus of this class is on learning fundamental rules and applying them to new situations, NOT testing your ability to fill your memory with facts or getting good at “faking it”! **When OChem II “clicks” because you start truly understanding it, we call that “CATCHING THE WAVE”!**

OK, so how can you learn and understand most efficiently?

1. You need to do some Organic Chemistry work on as many days every week as possible. Experts all say this is key to your deep learning of complex material like Organic Chemistry. This is why we have decided to give you electronic quizzes after almost every lecture. **Do things, don't just read things!**

2. Organic Chemistry is a structure-based language. It is essential that you get as much practice drawing structures and getting evaluated on them as possible before each exam. That is why we will be using two different homework systems, one electronic, and one that is written. The idea is to give you as much practice, with feedback, as possible **BEFORE** the exams.
3. *Grade alert, this next one is THE most important to help improve your grade.* Put a great deal of work into the Daily Quizzes and weekly Homework Problem Sets. We are designing these so they will prepare you directly for the exams.
4. **Grades are important, but learning how to think is more important for your future. Organic Chemistry is hard because it requires you to develop complex critical thinking skills more than any other class you have taken. Please embrace the challenges as well as your successes in this class! IF WE ARE BEING HONEST, WE ALL LEARN THE MOST FROM OUR MISTAKES.** In other words, I hope you can appreciate all aspects of the educational journey we are on this semester. You will be developing new and powerful intellectual skills of critical thinking, analysis and information synthesis that will guarantee your success throughout your future courses and careers. This is really hard but worth it. In fact, it is THE reason you are at UT Austin.

Office Hours

Having Your Questions Answered is a Huge Part of Learning Organic Chemistry

I am sort of stating the obvious there I know. Unfortunately, in the past, attendance at my office hours usually only reached about 20% of the class (or less) most of the time. We now offer a variety of formats. We assume all of you will watch the on-line simulcast office hours on Mondays from 3:30 - 5 PM, but we also assume you will attend at least one of the other formats at least once per week. [See recordings by clicking here.](#)

Monday 3:30-5 PM Studio is BUR 124 Iverson Live Virtual Simulcast Office Hours (recorded) - I will provide prepared explanations of the most difficult material, answer questions you submit from your computers, and I will work through difficult examples with you. You can also attend in person in the very cool broadcast studio! No Hawaiian shirts required if you attend in person, although they are recommended. We assume that all of you will be coming to this office hour or at least watching the recording. [Click here to attend by live streaming.](#) [Click here to attend by live Zoom.](#)

Tuesday 3:30-4:30 PM MEZ 1.306 Active Problem Solving (recorded) - Historically, students say these are THE BEST WAY TO SUCCEED IN THE COURSE. New and challenging problems will be presented, and you will work in groups to solve them. These optional sessions will provide the perfect opportunity to ask any questions you have about any of the course material as well.

Wednesday 5-6 PM MEZ 1.306 Iverson In-person Office Hours (recorded) - I will be answering questions in a standard format office hour each week. Attend this if you have specific questions about the material being currently discussed in lecture.

Thursday 5-7 PM BUR 108 "Missed the Wave" Office Hours (recorded) - Falling behind a little, no worries. We got you. It happens to everyone, especially in OChem II. This office hour is specifically for people who feel they need help catching up or want to discuss older material. TA Qifan or one of the other TAs will lead this. If you ever feel you are missing the wave during the semester, THIS IS THE OFFICE HOUR FOR YOU!

Friday 10-11 AM PHR 2.110 Active Problem Solving (recorded) -- Historically, students say these are THE BEST WAY TO SUCCEED IN THE COURSE. This will be a repeat of the Tuesday session, no need to attend both!

Review Sessions

I will be leading all of these. [Click here to see the recordings.](#)

Special Review of 320M/328M material (recorded) - Wednesday, January 17th, 6-8 PM, WEL 2.224. We have found it helpful to hold a two-hour review at the beginning of the course to review first semester material, with an emphasis on exactly which first semester material is the most important as we begin second semester OChem.

The following review sessions are designed to help you as much as possible prepare for the exams (recorded).

Tuesday, February 13 Room: WEL 3.502
([recorded](#)) 7:00 - 9:00 PM

Tuesday, March 5 Room: WEL 3.502
([recorded](#)) 7:00 - 9:00 PM

Tuesday, April 9 Room: WEL 3.502
([recorded](#)) 7:00 - 9:00 PM

Monday, April 29 Room: WEL 1.308
([recorded](#)) 5:00 - 7:00 PM



Tutors Reimagined

I have arranged for two additional types of tutoring that will be coming soon. The first involves the Supplemental Instruction (SI) program at the Sanger Learning Center. The second is a two-week experiment using a brand new AI personal tutor system developed by a recent UT graduate. **Both of these are amazing. If you do not try them, you will never know how high your grade can be!**

Supplemental Instruction: This course is supported by Supplemental Instruction sessions. Supplemental Instruction sessions are led by experienced and trained students who develop engaging, structured, small-group activities for you to work through. These sessions are a consistently scheduled time for you and your classmates to tackle difficult content and learn the best approaches to the course! More

information on session times and locations will be available via Canvas as the semester begins.

AI Tutor (Felix): Felix, also known as Tailored Tutor, is an AI-powered course assistant that you will all have temporary premium access to until 1/31. It's available 24/7 to guide you through material in a meaningful way to promote learning. It will be useful in guiding you through homework, studying, or refreshing on concepts you're confused on! You can find it at app.tailoredtutor.net. You are the very first class to try out this incredible new technology. Try and let us know how it works for you!



Resources

Required Text: Brown, Iverson, Anslyn and Foote, Organic Chemistry, 9th Edition, Cengage, the hardbound or the much cheaper eBook edition. This text is part of the Longhorn Textbook Access program, so you should already have access to it. Remember this is an automatic enrollment/opt-out program!

Recommended Materials: Molecular Models. These often make the difference between an A or B and C or lower. No kidding, buy them if you don't already have them, even though they are overpriced.

Important additional Sources:

1. All old exams are posted on the web page.
2. Exam keys will also be posted on the course web page following the exams.

We will be using the Class Chat to provide an opportunity for electronic forums for all course material related questions. Please ask your questions about the class material there!

There will be E-mail access under "E-mail Us" on the web page, (electron@cm.utexas.edu) if you want to ask a personal question not related to course material.

Section Changes, Adds, and Drops: All such business (involving either lecture or laboratory) will be handled during the first and second weeks of class by the Chemistry undergraduate office personnel in Welch 2.212.



Important Information

Course Prerequisites: For CH320N: The following coursework with a grade of at least C-: Chemistry 320M, or 328M.

Attendance: Organic Chemistry is a very hard subject and can only be mastered through very disciplined study. This means attendance at every class is among the minimum requirements for success. It will be virtually impossible to do well in this class if you do not attend the lectures faithfully. Successful students rely more on their lecture notes than the text, since the person giving the lectures is writing the exams. Okay, so I helped write the book as well, but you get the point.



Drop dates: Through the twelfth class day. [Click this link below for more information about: Drop dates, Nonacademic Q Drops, One Time Exemption Drops](#)

Incompletes (Final grade entered as X): An incomplete may be issued only in the case of compelling, nonacademic circumstances beyond the student's control. An example is missing the final examination because of illness or for another nonacademic reason. A physician's statement or other satisfactory verification is required. [Other information about incomplete can be found by clicking this link.](#)

Course Taken on a Pass/Fail Basis (CR/NC): [More information can be found by clicking this link.](#)

Classes Missed: Click the links for the university policy for [athletic varsity team or other official extracurricular activity participation, religious holy days or military service.](#)



Homework and Quizzes

Homework: There will be weekly homework assignments due on most Mondays at 10 PM. Taken together, your homework grade will be worth 10% of your final grade. [Click here for homework assignments/answers.](#)

We will be using an **Aktiv Learning** homework system that will give you more opportunities to receive important feedback to help prepare you for the exams. You will need to sign up for Aktiv Learning. [Click on this link and follow the directions.](#) The Aktiv Learning system costs some money, but previous students say that it was worth it because it really helped them learn the material in a powerful way.

We will also be using **Gradescope** to upload your written homework. [Click on this link to get started with Gradescope.](#) This may seem “old school” to have manually written homework these days, but neuroscientists have confirmed that manually writing words

and drawing structures is the BEST way to create a long term memory as you learn the material. This really does work!

The entire Aktiv Learning homework section will be graded (but you get three tries per question!), and we will be grading ONE of the Gradescope homework questions each week, then also assign a portion of your grade for completion. Your weekly homework grade will be based 20% on the Aktiv Learning part and 80% on the Gradescope part.

Quizzes: There will be daily quizzes that cover the material from each lecture. The Quizzes will be assigned and taken through Canvas and will be due at 10 PM on the day following each lecture (Wednesday or Friday). Taken together, your quiz grade will count for 3% of your final grade.

The best way to learn a subject is to interact with that subject every day, that is why we have the homeworks quizzes!



Midterm Exams

Three mid-term exams will be given during the course of the semester. They will be held on Thursday evenings from 6:00 - 9:00 PM on the following days:

Thursday, February 15, 6:00 - 9:00 PM,
Rooms: WCH 1.120, WEL 2.224, WEL 3.502

Those of you with last names starting with the letters A-G report to WCH 1.120, those with last names starting with H-R report to WEL 2.224, those with last names starting with S-Z report to WEL 3.502.

Alternate Time (for excused changes only*): 3:00 - 6:00 PM, Room: POB 2.302 (POB is the Peter O'Donnell Building across Speedway from Welch Hall)
Students with Accommodations Room: Open from 4:00-10:00 PM, UTC 4.122

*An excused change is one caused by a regularly scheduled (in the course schedule) class or lab class. NOT an organization meeting, music practice or a job. If you have any unexcused conflicts, it is up to you to arrange to be present at the midterm exams from 6-9 PM on the designated day.

Thursday, March 7, 6:00 - 9:00 PM, Rooms:
WCH 1.120, WEL 2.224, WEL 3.502 Those of you with last names starting with the letters A-G report to WCH 1.120, those with last names starting with H-R report to WEL 2.224, those with last names starting with S-Z report to WEL 3.502.

Alternate Time (for excused changes only*): 3:00 - 6:00 PM, Room: POB 2.302
Students with Accommodations Room: Open from 4:00-10:00 PM, UTC 4.122

Thursday, April 11, 6:00 - 9:00 PM, Rooms:
WCH 1.120, WEL 2.224, WEL 3.502 Those of you with last names starting with the letters A-G report to WCH 1.120, those with last names starting with H-R report to WEL 2.224, those with last names starting with S-Z report to WEL 3.502.

Alternate Time (for excused changes only*): 3:00 - 6:00 PM, ROOM: POB 2.302.
Students with Accommodations Room: Open from 4:00-10:00 PM, UTC 4.122

Final Exam

The final exam will be comprehensive in nature. It will emphasize the latest material discussed in the class, but it will also cover material from the entire semester.

Friday May 3

3:30 - 6:30 PM HMA (Hogg Memorial Auditorium) and UTC 2.112A Those of you with last names starting with the letters A-L report to HMA, those with last names starting with M-Z report to UTC 2.112A.

Makeup Exam*: Friday May 3

7 - 10 PM UTC 2.108

Accommodation Room: Friday May 3

3:30 - 10 PM UTC 4.110

*For excused changes only



More Exam Information

Policy on Exam Coverage: You will be responsible for all material covered up to the Tuesday lecture the week of each midterm unless I say otherwise in class. Also, the pace of the class can vary, so do not be concerned if we are not on the same schedule as described in this syllabus under "proposed exam topics". The bottom line is that you are only responsible for the material covered in the Tuesday lecture the week of each midterm, **NO MATTER WHAT THE SCHEDULE ON THE NEXT PAGE OF SYLLABUS SAYS ABOUT "UNITS" COVERED ON EACH MIDTERM.**

Students with Disabilities: For students with accommodations registered with the Disability and Access office, on the day of the exam you can take the exam in the Chemistry department

testing center anytime between 9 AM and 5 PM if that timing works for you. [Click here to schedule those exams.](#) If that timeframe does not work for you, then you must take your midterm exams in **UTC 4.122**, which will be available from 4 - 10 PM on the nights of the midterm exams. **UTC 4.122** will be distraction free with a proctor present. Please come see me after class if you have any questions. **Note if you are taking your exam in UTC 4.122, you do NOT need to check with us ahead of time, just report to the room when you are ready to take the exam and there will be one waiting for you.**



Material Covered on Exams (Estimate)

The following schedule is only approximate and subject to change during the semester. In other words, if we don't cover material the Tuesday before a test, it will not be on the test no matter what this schedule says.

Proposed Exam Topics (Subject to Revision)

Mid-term Exam I: Units 1-2

Mid-term Exam II: Units 3-5

Mid-term Exam III: Units 6-8

Final Exam: All of the above.

Unit 1: MRI and Introduction to Organometallic Compounds Chapter 13 (only the MRI section), Chapter 15

Unit 2: Introduction to Carbonyl Chemistry: Aldehydes and Ketones, Chapter 16

Unit 3: Carbonyl Chemistry Continued: Carboxylic Acids and Derivatives, Chapters 17,18

Unit 4: Formation of Carbon-Carbon Bonds with Carbonyl Compounds: Enolates, Chapter 19

Unit 5: Aromatic Compounds and Their Reactions, Chapters 20, 21, 22

Unit 6: Amines, Chapter 23

Unit 7: Carbon-carbon Bond Forming Reactions and Synthesis, Chapter 24, Selected sections

Unit 8: Biological Molecules: Lipids, Carbohydrates, Amino Acids and Nucleic Acids, Chapters 25-28, Various Sections

Grading

Your final grade will be calculated as follows:

3% is the Daily Quizzes total for the semester

10% is your Homework Grade (20% Aktiv Learning Grade / 80% Gradescope Grade) for the semester

52% is your highest two midterm scores (the higher of the raw percentage or T score). Each midterm is worth 26% of your final grade, we automatically drop the lowest of the three including cases in which you miss one.

35% is your score on the final (the higher of the raw percentage or T score).

<u>Score</u>	<u>Letter Grade</u>
93.0000 < T	A
90.0000 < T < 93.0000	A-
87.0000 < T < 90.0000	B+
83.0000 < T < 87.0000	B
80.0000 < T < 83.0000	B-
77.0000 < T < 80.0000	C+
73.0000 < T < 77.0000	C
70.0000 < T < 73.0000	C-
67.0000 < T < 70.0000	D+
63.0000 < T < 67.0000	D
60.0000 < T < 63.0000	D-
T < 60.0000.....	F

T score calculation:

$$T = [(x-X/s) \cdot 10] + 80$$

x = your raw test score, X = the class mean score = $\sum x/N$, N = number of test scores, s = standard deviation = $[\sum(x-X)^2/(N-1)]^{1/2}$

Grading (Details 1)

Using Standard T-Scores allows an effective averaging of grades without introducing a bias in favor of tests with the greatest standard deviations. Since it is based on a normal (Gaussian) distribution, it generally represents the fairest way of grading. (Nearly all national exams such as the SAT, MCAT, and GRE use a similar form of Standard T-Scores)

In general, using T-scores increases everyone's grades compared to using absolute percentages. Nevertheless, we will keep track of your percentage scores on every test. If the percentage scores are ever higher than your T-score, we will use the percentage score for your course grade calculation. Thus, if everyone does extremely well in this course, no grade will be lowered by using a curving system!

Taken together, the mid-term examinations will count for 52% of the final course grade. Plan NOW

to be present for these exams! During the semester, however, one exam may be missed for any reason whatsoever without penalty. If you take all three exams, we will automatically drop your lowest grade. Failure to take two mid-term exams will result in an automatic F (or, in the case of justifiable excuse, an X) being assigned in 320N. It is particularly important that students avoid any potential conflicts between these scheduled evening exams and any other activities such as laboratory classes. If unavoidable conflicts exist, please come see me immediately. Please note, I am sorry for any inconvenience these out of class three hour exams might cause, but we do things this way for two important reasons:

- 1) We can use rooms large enough to ensure no cheating is taking place during the exam.
- 2) The three hour format means we can administer tests that are comprehensive, yet do not have unreasonable time limits. Thus, you will have a chance to show what you know, not just how fast you can write.

Grading (Details 2)

Note that for the midterm exam grade that is dropped, the homework points for the weeks leading up to that exam do not count for any other exams. Also, for any exam for which you arrive after the official start time, you will only be allowed to enter the exam room if not a single student has already finished and left. BE ON TIME!!

The final exam, accounting for 35% of the course grade, will be comprehensive in its coverage of the material presented in Chemistry 320N. There will be no make-up exam for the final and it may not be taken at an alternative time for any reason. Specifically, failure to take the final exam at the scheduled time and place without an approved, documented excuse will automatically result in a failing grade being assigned for 320N. A documented, excused absence at the final will result in an Incomplete being assigned for the course. An example of a documented, excused absence is a note

from a doctor that states you are physically UNABLE to attend the final. Simply not feeling your best is NOT considered to be an excused absence, as we all have days in which we are not feeling well but must take care of our responsibilities anyway. If you are up and walking around campus on the day of the final, you must take it. NO EXCEPTIONS.



Academic Honesty

Student Honor Code

I pledge, as a member of The University of Texas at Austin community, to do my work honestly, respectfully, and through the intentional pursuit of learning and scholarship.

1. I pledge to be honest about what I create and to acknowledge what I use that belongs to others.
2. I pledge to value the process of learning in addition to the outcome, while celebrating and learning from mistakes.
3. This code encompasses all the academic and scholarly endeavors of the University community.

Any violation of the above Honor Code that occurs during an exam or in the regrading process will result in a 0 being assigned for that exam and the student involved will be formally reported to the

Dean of Students, where they will be subject to additional penalties or actions. The exam with the 0 will be automatically counted in the final grade calculation at the end of the semester.

Regrades: Exams can be turned in for regrades. Regrades must be submitted within 7 days after the exam is handed back. They can be handed to myself or one of the TA's. You must indicate what problems need to be regraded, and provide a brief explanation for your concern. The entire exam will be regraded.

Exam rules: The midterms and final are in-person only. You will not be allowed to have any reference materials or any other aids during the exams. Because of recent incidents, you will not be allowed to interact with your cell phone in any way during exams. No exceptions. Turn them off, or leave them at home. Interacting with a cell phone during an exam will be considered a violation of the Honor Code and will result in a 0 being recorded for your grade on the exam, **no matter what you were actually doing with the phone.**



Iverson CH320N