

CHEMISTRY 3310 Organic Chemistry I Fall 2024

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| Sections: 4 | Online |
| Exams: | Exams will be held <u>IN PERSON</u> on Monday nights, 6:45-7:45 PM. |
| Instructor: | Aaron Donovan |
| Office: | Hach 3196 |
| E-Mail: | adono@iastate.edu [Write " <u>Chem 3310</u> " on the subject] |
| Office Hours: | Schedule will be published on Canvas during first week of class. |

Textbook: *Organic Chemistry*, 4th Edition, by David Klein (available as Ebook and physical book). An optional *Student Study Guide & Solutions Manual for Organic Chemistry*, 4th Edition is also available and is recommended.

Canvas: We will be using Canvas for this course. Lecture notes, previous exams, grades, homework assignments, and class announcements will be posted there.

Online Homework: We will use the online homework system called Aktiv, which is accessed through Canvas. The homework is worth 10% of your final grade. In addition to the homework, there will be weekly quiz assignments for each chapter worth 10 points each. These quizzes will be worth 5% of your grade. Extra credit opportunities may be made available at the discretion of the instructor.

Grading: There will be four 100-pt semester exams and a 125-pt cumulative final exam. The course grade will be based on the three best 100-point exam scores plus the final exam score (which cannot be dropped). The lowest score on a 100-point exam or a missed midterm exam will be automatically dropped. Missing an exam for any reason will result in that exam being dropped. Cheating on an exam will earn a zero for that exam, which cannot be dropped. You are guaranteed the following grades: >92% A, > 88% A-, >85% B+, >80% B, > 75% B-, >70% C+, >60% C, >50% D; <50% F. Thus, in principle everyone in the class can earn an A. Since an exam will be dropped, it is not possible to tell you exactly where you stand grade-wise until all exam grades have been submitted. If you are satisfied with your exam grades after the first 3 exams, you may choose to not take the 4th exam, though you will be responsible for its content on the final exam. **Any errors in points or grades posted on Canvas should be addressed to adono@iastate.edu within a week from the date posted. It is your responsibility to monitor your score in Canvas.**

Exams: All exams are currently scheduled to held in-person on Monday nights from 6:45-7:45 pm. More details about the exam format will be communicated the week before the exam. In addition to the Final Exam (125 pts), there will be four midterm exams (100 pts each). Any re-grades on an exam must be requested within one week after receiving the graded exam. Missing an exam for any reason will result in that exam being dropped. The reason that I drop an exam is that it allows you to miss an exam for a personal or family emergency (such as an illness, a death in the family, car troubles, etc), or for other legitimate cause without suffering a grade penalty.

Relationship to the In-Person Sections: The course content/text, Aktiv assignments, and exams will be the same.

Co-requisite: Chem 3310 is a CO-REQUISITE for Chem 3310L.

Drops and Audits: Students taking Chem 3310L will be required to drop the lab if they drop or decided to audit Chem 3310 lecture course. Auditing does not count towards full-time student status.

Schedule for Chem 3310 (Fall 2024)

| Week | Date | Recommended Reading | Key Topics |
|---------|-----------------------|------------------------------|--|
| Week-1 | August 26 | Chapter 1 | Intro to Organic Chemistry Review of General Chemistry |
| Week-2 | September 2 | Chapter 2 Chapter 3 | Molecular Representation Acid-Base Chemistry |
| Week-3 | September 9 | Chapter 3 cont. Chapter 4 | Acid-Base Chemistry Alkanes and Cycloalkanes |
| Week-4 | September 16 | EXAM 1. Chapter 5 | Topics: Chapters 1-4 Stereoisomerism |
| Week-5 | September 23 | Chapter 6 | Chemical reactivity and mechanisms |
| Week-6 | September 30 | EXAM 2 Chapter 7 | Topics: Chapters 5-6 Substitution and Elimination Reactions |
| Week-7 | October 7 | Chapter 7 | Substitution and Elimination Reactions |
| Week-8 | October 14 | Chapter 7 Chapter 8 | Substitution and Elimination Reactions (finish) Addition Reactions of Alkenes |
| Week-9 | October 21 | Chapter 8 | Addition Reactions of Alkenes |
| Week-10 | October 28 | EXAM 3 Chapter 9 | Topics: Chapters 7-8 Alkynes |
| Week-11 | November 4 | Chapter 10 | Radicals |
| Week-12 | November 11 | Chapter 11 | Synthesis (problem solving) |
| Week-13 | November 18 | EXAM 4 Chapter 14 | Topics: Chapters 9-11 Infrared spectroscopy and Mass spectrometry |
| Week-14 | November 25 | | Thanksgiving Week, No Class |
| Week-15 | December 2 | Chapter 15 | NMR spectroscopy |
| Week-16 | December 9 | | Prep Week. Final exam review |
| | December 16-19 | FINAL EXAM WEEK | Comprehensive Final Exam including Chapter 14 & 15 (To Be Scheduled) |

Course Expectations: *A large amount of new material will be covered in this course and it is extremely important that you keep up. You should read the appropriate chapter to supplement the lecture videos and homework practice. Work on the end-of-chapter problems for your own benefit. The answers to those*

problems are available in the Study Guide & Solutions Manual. It is strongly advised that you work as many problems as you can to do well in this course.

The three most important tips for doing well in this class:

1. Watch the lecture videos throughout the week – not at the last minute! You can only consume so much information at a time.
2. Begin the homework early in the week so you can ask questions throughout.
3. Don't fall behind, as it is nearly impossible to catch up! Contact the instructor if you're struggling with certain concepts.

Learning Objectives:

Organic chemistry is a challenging subject. You will be expected not only to learn factual information, but also to apply your newfound understanding to open-ended problems. You should not aim simply to memorize the material. Rather, you should try to make sense of trends so that you can make predictions in unfamiliar situations. Problems fall into Five major categories:

Naming of Organic Compounds: You will learn about naming compounds which are cyclic or acyclic, alkanes, alkenes and alkynes with or without specifying stereochemical information such as R, S, E, Z, cis or trans.

Structure and properties: Major topics in this area include the properties of functional groups (the key parts of organic molecules), conformational analysis (the study of how molecules fold in three dimensions), and stereochemistry (the study of molecules possessing mirror-imaged partners).

Reactions and mechanisms: You will learn to predict the products of reactions, propose reagents for effecting desired reactions, and explain why reactions proceed the way they do.

Organic synthesis: Using your understanding of reactions, you will propose methods for preparing target molecules through multi-step reaction sequences.

Structure determination: Using your understanding of organic chemistry, you will deduce the structures of unknown compounds by analyzing their properties under a variety of conditions.

Mandatory Syllabus Statements:

Academic Dishonesty

The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office.

<http://www.dso.iastate.edu/ja/academic/misconduct.html>

Disability Accommodation

Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact (instructor name) to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Retroactive requests for accommodations will not be honored.

Prep Week

This class follows the Iowa State University Prep Week policy as noted in section 10.6.4 of the Faculty Handbook <http://www.provost.iastate.edu/resources/faculty-handbook> .

Harassment and Discrimination

Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, [Student Assistance](#) at 515-294-1020 or email dso-sas@iastate.edu, or the [Office of Equal Opportunity and Compliance](#) at 515-294-7612.

Religious Accommodation

If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the [Dean of Students Office](#) or the [Office of Equal Opportunity and Compliance](#).

Free Expression

Iowa State University supports and upholds the First Amendment protection of [freedom of speech](#) and the principle of [academic freedom](#) in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

No employee, student, applicant, or campus visitor is compelled to disclose their pronouns. Anyone may voluntarily disclose their own pronouns.

Contact Information

If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.