Chemistry 261-01 – Winter Session 2023/2024
Monday, December 18, 2023 – Wednesday, January 31, 2024
Organic Chemistry I

Instructor: Dr. Christopher McDaniel

Teaching Assistant: TBD

Email: mcdaniel@chem.umass.edu (must have "**CHEM 261**" (without quotes) **in the subject line)**

Lectures:

261-01, Online	At your leisure, but keep up.

Outside of Class Availability: via Zoom.

Day	**Time Available**
Chris: Monday/Wednesday	10:30 - 12:30 EDT
TA: TBD	TBD

Course Objectives

To Gain a clear understanding of the principles that govern organic chemistry, and not mere memorization of facts and mechanisms. This course will, hopefully, help you understand common functional groups, bonding, conformations of molecules, stereochemistry and various reactions of organic compounds.

IF YOU HAVE A QUESTION, DO NOT HESITATE TO ASK!
My goal, is to help you learn, not to teach.
Your goal should be to learn and apply the material.
If you do not have questions, you do not know what you do not understand.

Grading

Graded Assignment	% of Grade
OWLv2 Homework	20
Lecture Watching (Echo360)	10
OWL Quizzes	15
OWL Exams	35
OWL Final Exam	20
Total Percentage	**100**

Exams and Final

There will be 2 exams and 1 final exam, all electronic using OWL (not OWLv2) and not proctored. **If you need your exams to be proctored as per your school policy, please email Chris to set**

up a time and day. The final eExam is cumulative with 80% being material from exam 2 and on and 20% from before. Exams dates are below (note that all exams are due at the end of the term).

Exam	Date Opens	Due Date
1	12/31/2023 @ 8:00 AM	1/31/2023 @ 11:59 PM
2	1/7/2024 @ 8:00 AM	1/31/2023 @ 11:59 PM
Final	1/14/2024 @ 8:00 AM	1/31/2023 @ 11:59 PM

OWL (not OWLv2) has required introductory assignments because that system is a bit different than OWLv2 (used for homework). This intro assignment is due the Sunday at the end of week 1.

Final Grade Distribution

I anticipate the average in this class will be around a "C+" (≈ 77%). The minimum final percentage distribution for the grading scale is shown below. If the class produces an average significantly lower than expected, the grading scale will be adjusted in favor of the student. I will never "down curve." For example, an "A-" will never be higher than a 90%, but can be adjusted to an 89% if I find it necessary. **I reserve the right to adjust the percentage ranges in favor of the student.**

Approximate Percentage Range	Anticipated Grade	Approximate Percentage Range	Anticipated Grade
100 - 93.0	A	79.9 - 77.0	C+
92.9 - 90.0	A-	76.9 - 73.0	C
89.9 - 86.0	B+	72.9 - 70.0	C-
85.9 - 83.0	B	69.9 - 60.0	D+
82.9 - 80.0	B-	59.9 - 50.0, <50	D, F

Important Information

Course Prerequisites

CHEM 112 or 122H or an equivalent general chemistry II with a grade of "C-" or better.
I will review pertinent information from these courses; however, I do expect working knowledge of the material from them.

Course Materials

Consult SPIRE/eCampus

Course Webpage:

We will be making use of the OWLv2 system for online homework. We HAVE to use OWL (not OWLv2) for exams and quizzes. OWL (not OWLv2) has required introductory assignments because that system is a bit different than OWLv2 (used for homework). This intro assignment is due the Sunday at the end of week 1. We will utilize Moodle for announcements, handouts, online lectures. We will use the Zoom platform for online office hours. You are responsible for all electronic communication from me and the TA, and any announcements posted.

HELP!!

I will be holding virtual office hours via Zoom at the times listed in the table on the first page of this syllabus. Please do not hesitate to contact me if you need help!

Notes

These are one of the best ways for you to succeed in this class. Active note taking and not just copying down is imperative to your learning and understanding the material. I suggest a dedicated notebook for this class as we will be doing a lot of writing.

OWL Quizzes

There will be 5 quizzes for this course, of which the highest 4 by percentage will be counted. These use the same platform and interface as the exam to get you used to it. OWL (not OWLv2) has required introductory assignments because that system is a bit different than OWLv2 (used for homework). This intro assignment is due the Sunday at the end of week 1. Quizzes will open on the dates in the table below. Note that all are due the last day of the term. No extensions will be given!

Quiz	Date Opens (all 8:00 AM)	Due Date (all 11:59 PM)	Lectures Covered
1	12/22/2023	1/31/2024	1 and 2
2	12/27/2023	1/31/2024	Up through 6
3	1/1/2024	1/31/2024	Up through 9
4	1/5/2024	1/31/2024	Up through 16
5	1/10/2024	1/31/2024	Up through final lecture

Course Topics and Material

The chapters from the book that will be covered this semester are listed below in the anticipated week. *If I do not cover a particular section in lecture, then you are not responsible for that material.*

Chapter 1: Structure and Bonding;
Chapter 2: Polar Covalent Bonds and Bronsted-Lowry and Lewis Acids and Bases
Chapter 3: Alkanes and Their Stereochemistry;
Chapter 4: Cycloalkanes
Chapter 5: Stereochemistry at Tetrahedral Centers;
Chapter 6: Organic Reactions Overview
Chapter 7: Structure and Reactivity of Alkenes;
Chapter 8: Reactions of Alkenes;
Chapter 9: Reactions of Alkynes;
Chapter 10: Organohalides;
Chapter 11: Nucleophilic Substitution Reactions and Elimination Reactions
Chapter 13: NMR Spectroscopy

Academic Misconduct and the Student Code of Conduct
As per requirement by UMass Amherst: "Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. [See **Appendix B** of the Student Code of Conduct for detailed examples of behavior that constitutes academic dishonesty.] Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. The procedures outlined below are intended to provide an efficient and orderly process by which action may be taken if it appears that academic dishonesty has occurred and by which students may appeal such actions."

Academic misconduct of any type will not be tolerated and will be dealt with in accordance with the Student Code of Conduct as outlined on the following UMass website:

www.umass.edu/dean_students/codeofconduct/acadhonesty/#B

Disabilities and Accommodation Policy

The University of Massachusetts Amherst is dedicated to providing equal opportunity/accommodations and access for every student. If you would like to request such accommodations because of a physical, mental, or learning disability, please contact your instructor or the Office of Disability Services, DS, (161 Whitmore Administration Building) within the first two weeks of class. Their phone number is 413.545.0892. "Any student with a disability who needs a classroom accommodation, access to technology or other academic assistance in this course should contact Disability Services (ds@educ.umass.edu) and/or the instructor. DS serves students with a wide range of disabilities including, but not limited to, physical disabilities, sensory impairments, learning disabilities, attention deficit disorder, depression, and anxiety."

YOU ARE RESPONSIBILE FOR ALL CHANGES TO THIS SYLLABUS MADE IN CLASS, REGARDLESS IF YOU ARE IN ATTENDANCE OR NOT

Keys to Success in Organic Chemistry

Organic chemistry is best learned by working out problems. This means trying the problem, working through it by looking back at your notes and the textbook for help, then looking at the answer. DO NOT READ THE ANSWER KEY AND AGREE WITH THEIR SOLUTIONS! THIS IS SETTING UP FOR eExam DISASTER!! Read the book with pencil/paper in hand and take your own notes as you go along. This ensures the material is going through your head. Practice writing structures and mechanisms as you learn them so they are easier to recall when needed. I suggest working as many problems as possible, then working them again. The type and level of difficulty on the quizzes and eExams will reflect the problem sets that I create for you.

SPEND TIME WITH THE MATERIAL EACH DAY! I can't stress this enough. Working 2-3 hours each day is much more beneficial than trying to do everything 12 hours before

the eExam. To succeed in this class, most students find that 15-20 hours/week is necessary. In my experience, students who wait to study until a few days before the eExam, never looking at the material, usually do very poorly.

DO NOT WORK THE PROBLEMS WITH THE ANSWER RIGHT BESIDE YOU!!
This is a guaranteed way to learn and understand absolutely nothing.

During the course of CHEM 261 the amount of material covered over such a short period of time is so large that the significance of the "facts" being learned and the relationship of this knowledge to those diverse fields are lost. In this way, organic chemistry is identical to a foreign language. You wouldn't go into a foreign language never having looked over the vocabulary. Before the synthesis of elegant compounds and the appreciation of complex biochemical transformations can be appreciated, basic rules of nomenclature and reaction (our "**vocabulary**") and reaction mechanisms (our "**grammar**") must be mastered.

It has been my experience that success in organic chemistry requires much self-motivation and practice. Reading a chapter without doing problems is generally as useless as watching an undubbed foreign movie without subtitles, or reading a book about how to play a guitar and then attempting to play a concert in front of 15,000 people without any practice.

It has been said that the key to organic chemistry is merely **memorization**. This is **FALSE**. Believe it or not, the best way to succeed in this course is by learning and applying the fundamental concepts and by doing problems. Even nomenclature is best learned through practice and experience rather than straight memorization.

Flash cards will only take you so far in this course, as will become apparent in the later weeks. Not understanding the stuff on the flash card will not help you when asked about material in a slightly different matter than what has been presented previously. **Remember, the chemistry will never change, just the way that it is presented!!** If I asked you to, without a calculator, multiply 256 x 96, most of us would need a minute or two to work it out. Somewhere along our childhood education, we had to memorize the multiplication table. But what happens when the table stops at a 12 by 12 matrix? You'll need to use your understanding of multiplication, i.e., break it down into smaller, more approachable problems one step at a time.

The eExams will be prepared in a manner that requires a good understanding, not a good memory.

Study Habits that Worked for Me

- Study at a time day when you are alert. It is useless to study tired.
- After lecture, recopy all of your notes into a separate notebook. This takes a lot of time, but it ensures the material goes through your head again! Trust me, it works.
- Go through your notes and the textbook and write questions down as you go. You will forget them if you come to office hours not prepared to ask.
- Do all of the suggested problems in the text, and complete the problem sets I provide you without the answer key open next to you.

- Study 2-3 hours, 5 - 6 days/week. You will find that cramming for an exam is not necessary when you do this.
- **I cannot stress these last two points enough. Please take the advice of someone who struggled initially in organic chemistry.**
- Find a study partner or group, but no more than 3 people in said group. Any more than this, we all start to get off topic too much and before you know it, you have "studied" for 3 hours. Your study time needs to be quality as opposed to quantity.
- Think about what you are doing, while you are doing it.
- Relax and do your best. If you work hard, it will pay off in the end