Organic Chemistry II, CH 244A
Spring 2023

Meeting Times: Lecture: Tuesday 11:00-11:50 AM, Thursday 12:30-01:20 PM

Recitation (Wednesday) RA: 10:00-10:50 AM, RB: 12:00-12:50 PM

Location:

Lecture: Gateway South 122

Recitation: RA (McLean 105), RB (Burchard 430)

Instructor: Dr. Abhishek Sharma

Contact Info: asharm16@stevens.edu, Phone: 201-216-3539

Office Hours: Tuesday 2:00-3:00 PM or by appointment.

Office Location: McLean 314

Prerequisite(s): CH 243

COURSE DESCRIPTION

This course is the second half of a two-semester sequence following Chemistry 243. This course provides an understanding of organic molecules and teaches the relationship between structure and reactivity. We will cover the major types of organic compounds, reaction mechanisms, functional group transformations and spectroscopy.

LEARNING OBJECTIVES

After successful completion of this course, students will be able to…

1. Understand the properties and reactivity of important functional groups including alcohols, phenols, ethers, epoxides, conjugated π-systems, carbonyl compounds, carboxylic acids/derivatives and amines
2. Write detailed mechanisms for important reaction classes
3. Plan multi-step syntheses of organic compounds

4. Understand important spectroscopic features of organic compounds and determine the structure of organic compounds using spectroscopic techniques

FORMAT AND STRUCTURE

CH 244A will meet two times a week. There will also be a recitation each week.

Organic Chemistry is the language of life and it is a vital foundation for diverse research areas such as drug design/discovery, polymer science, and sustainable energy resources. Moreover, it offers a *unique combination of logic and creativity*. Therefore, the critical thinking skills that you develop during this course will be very useful to you in your future career paths and life in general.

Learning organic chemistry involves getting familiar with the reactivity of organic compounds and reagents. *The emphasis of this course is not on the memorization of facts, but* ***understanding the reaction mechanisms, unifying themes in organic chemistry and development of problem solving skills****. To fully take advantage of class and succeed, please read the chapters/sections before the lecture.*

COURSE MATERIALS

(a) Text Book
Organic Chemistry (**4th Edition**)
Author: David Klein
Publisher: Wiley
Required online HW: Wiley Plus with canvas integration

(b) Optional (*highly recommended*)
"Organic Chemistry As a Second Language: Second Semester Topics" (any edition); Author: David R. Klein
"The Art of Writing Reasonable Organic Reaction Mechanisms" (any edition); Author: Robert B. Grossman

COURSE REQUIREMENTS

Attendance: Attendance and participation is strongly encouraged. *The only way to earn in-class points is by attending and participating*. There will be no make-up for in-class activities.

Quizzes/Worksheets: Students will work in groups to complete the worksheets. These worksheets are designed to help students solve problems on the material covered in previous lectures. It is very important that students complete these worksheets in order to do well in quizzes and exams.

There will be a quiz every **Wednesday during recitation** based on the material covered in the previous week. Quizzes will be closed book, open discussion. Weekly quizzes will be released during the recitation for each class. **The answers to the quizzes must be uploaded on canvas by each student at the end of**

each class period to receive credit. Students can write all the answers on a blank paper or tablet with pen and upload the picture (jpeg/pdf/png) on canvas.
There will also be in-class worksheet assignments given during the class period. You will need to solve these questions in groups (open discussion) and upload your answers on canvas.

Note: Any student caught cheating on quizzes will automatically get a zero on the quiz in question and pending disciplinary action.

Journal article reading assignment: Students will be assigned to read journal article(s) and provide summary/connecting the organic chemistry concepts to real world/answer questions based on a research article during the semester. This will be an online graded assignment.

Homework: Students will be required to buy the access to Wiley Plus. Access Wiley Plus ONLY through canvas course CH244 A. **The HW assignment will release midnight on Sunday every week and is due the following Sunday at 7:00 AM.** Online assignments must be completed promptly on time to receive credit.

Exams: Three mid-term exams will be given during this course. These mid-term exams will focus on the designated chapters. The final exam will be cumulative. All the exams are closed book. The dates for the mid-term exams are listed in the tentative course schedule.
Note: Any student caught cheating on exams will automatically get a zero on the exam in question and pending disciplinary action.

GRADING
Grades will be based on:

Quizzes, In-Class worksheets and Journal assignment	(25%)
Homework	(15%)
Three (50-minute) mid-term exams	(35%)
Final Exam	(25%)

Keys to Success in this Course

1. **Attend Lectures and Recitations**: Please read the assigned chapter sections before the lecture covering that material. This will accelerate your learning and allow you to effectively participate during in-class and recitation worksheet assignments.
2. **Keep up with reading**: Don't let things slide. Study organic chemistry every day.
3. **Practice Problem Solving**: ***Organic chemistry, like any skill, is best learned by doing***. Try to solve the problems given in each chapter in addition to the homework. ***Working problems and drawing reaction mechanisms is the best way to learn*.** Working problems *develops* and tests your knowledge and prepares you for exams.
4. **Actively participate**: The in-class activities and worksheet assignments during recitations are designed so that you can better appreciate the underlying unifying concepts and apply it solve a variety of problems.

MAKE UP FOR COURSE ACTIVITIES

Make up for quizzes and exams are available for ***approved excused absences***. There will be no make-up for in-class activities.
Approved excused absences include: documented illness, deaths in the immediate family and other documented crises, call to active military duty, court-imposed legal obligations (jury duty, subpoenas), religious days, special requirements of other courses and university sponsored events such as performances, games/meets, judging trips, and field trips.

For an approved excused absence, students need to contact **the Office of Undergraduate Academics** with their documentation. A student wishing to take the make-up exam for an approved excused absence need to email their instructor as soon as possible.
NOTE: Employment schedules and athletic training/practice schedules are not valid excuse for absences.

ACADEMIC INTEGRITY

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution (https://www.stevens.edu/honor). More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at http://web.stevens.edu/honor.

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

"*I pledge my honor that I have abided by the Stevens Honor System*."

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor.

LEARNING ACCOMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit https://www.stevens.edu/office-disability-services. If you have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu or by phone (201) 216-3748.

INCLUSIVITY

Name and Pronoun Usage

As this course includes group work and in-class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes. Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

Course Schedule (CH 244A, Spring 2023)

The following is a tentative course schedule. Any changes to this schedule will be communicated to you in class or via Canvas announcement.

Week	Tuesday	Thursday	Chapter
1		**01/19** (Lecture 2) Alcohols and Phenols-1	Chapter 12
2	**01/24** (Lecture 3) Alcohols-2	**01/26** (Lecture 4) Alcohols-3/ Ethers and Epoxides	Chapter 12 Chapter 13
3	**01/31** (Lecture 5) Ethers and Epoxides	**02/02** (Lecture 6) Spectroscopy-1 (NMR)	Chapter 13 & 15
4	**02/07** (Lecture 7) Spectroscopy-2 (NMR/MS)	**02/09** **Exam 1 Review**	Chapter 15 and 14
5	**02/14** **Exam-1**	**02/16** (Lecture 8) Spectroscopy-3 (MS/IR)	Chapter 14
6	**02/21** Conjugated Systems-1	**02/23** (Lecture 9) **Recitation Class**/Conjugated Systems-2	Chapter 16
7	**02/28** (Lecture 10) Aldehydes/Ketones-1	**03/02** (Lecture 11) Aldehydes/Ketones-2	Chapter 19

8	**03/07** (Lecture 12) Aldehydes/Ketones-3	**03/9** (Lecture 13) Carboxylic acids-1	Chapter19/20
Spring Recess (March 12 – March 19)			
9	**03/21** (Lecture 14) Carboxylic acids-2/Carboxylic acid Derivatives- 1	**03/23** **Exam 2 Review**	Chapter 20
10	**03/28** **Exam-2**	**03/30** (Lecture 15) Carboxylic acid Derivatives- 2	Chapter 20
11	**04/04** (Lecture 16) Carboxylic acid Derivatives-3	**04/06** (Lecture 17) α-Carbon Chemistry-1	Chapter 20/ Chapter 21
12	**04/11** (Lecture 18) α-Carbon Chemistry-2	**04/13** (Lecture 19) α-Carbon Chemistry-3	Chapter 21
13	**04/18** (Lecture 20) Amines-1	**04/20** (Lecture 21) Amines-2	Chapter 22
14	**04/25** **Exam-3 Review**	**04/27** **Exam-3**	
15	**05/02** **Final Exam Review**	**05/04** **Friday class schedule**	
16	**Final Exam (TBD)**		