



蘇州大學  
Soochow University

# CHM 231 Organic Chemistry I

Summer 2024

**Course Credits:** 4

**Contact Hours:** 56 hours

**Instructor:** TBA

**Email:** TBA

## COURSE OBJECTIVES

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This course provides a comprehensive foundation in fundamental concepts, chemical reasoning, and advanced problem-solving skills for synthetic organic chemistry, biochemistry, and medicine. It establishes a strong framework by consistently unifying reactive principles and emphasizes real-world applications, drawing connections between molecular structure and reactivity within cellular processes. The updated curriculum seamlessly integrates advanced problem-solving approaches, synthesis skill-building applications, and tutorials, ensuring a comprehensive and guided learning experience throughout the academic term.

Upon Completion of this Course, students will be able to:

1. Understand fundamental concepts in synthetic organic chemistry, biochemistry, and medicine.
2. Apply theoretical knowledge to practical scenarios, emphasizing fundamental aspects within cellular processes.
3. Explore the intricate relationships between molecular structures and their functions, particularly within the context of organic compounds.
4. Understand the principles of stereochemistry, providing insights into the spatial arrangement of molecules and their impact on reactivity.

## PREREQUISITES

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N/A



## GRADING

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Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

| ITEM         | POINTS     |
|--------------|------------|
| Quizzes      | 15 Points  |
| Discussion   | 15 Points  |
| Midterm Exam | 20 Points  |
| Lab Reports  | 20 Points  |
| Final Exam   | 30 Points  |
| Total        | 100 Points |

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

## COURSE MATERIALS

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### Required Texts:

Paula Yurkanis Bruice, *Organic Chemistry*, 4th Edition, Prentice Hall, 2003.

### Recommended (Optional) Texts or Other Materials:

None

## COURSE TOPICS

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| MODULE   | TASKS  |
|----------|--|
| Module 1 | <p><b>Topics:</b></p> <p>Topic 1: Electronic Structure and Bonding • Acids and Bases.</p> <p>Topic 2: An Introduction to Organic Compounds (Nomenclature, Physical Properties, and Representation of Structure).</p> <p>Topic 3: Reactions of Alkenes.</p> <p>Topic 4: Stereochemistry (The Arrangement of Atoms in Space; The Stereochemistry of Addition Reaction).</p> <p><b>Assessments:</b></p> |



|          |   |
|----------|---|
|          | Quiz#1<br>Lab Report#1  |
| Module 2 | <b>Topics:</b><br>Topic 5: Reactions of Alkynes • Introduction to Multistep Synthesis.<br>Topic 6: Reactions of Dienes • Ultraviolet and Visible Spectroscopy.<br>Topic 7: Reactions of Alkanes • Radicals.<br>Topic 8: Substitution Reactions and Elimination Reactions of Alkyl Halides.<br><b>Assessments:</b><br>Quiz#2<br>Discussion |
| Module 3 | <b>Topics:</b><br>Topic 9: Reactions of Alcohols, Ethers, Epoxides, and Sulfur-Containing Compounds • Organometallic Compounds.<br>Topic 10: Mass Spectrometry and Infrared Spectroscopy.<br>Topic 11: NMR Spectroscopy.<br>Topic 12: Reactions of Benzene.<br><b>Assessments:</b><br>Midterm   |
| Module 4 | <b>Topics:</b><br>Topic 13: Carbonyl Compounds.<br>Topic 14: More About Oxidation–Reduction Reactions.<br>Topic 15: More About Amines • Heterocyclic Compounds.<br>Topic 16: Carbohydrates.<br><b>Assessments:</b><br>Quiz#3<br>Lab Report#2  |
| Module 5 | <b>Topics:</b><br>Topic 17: Amino Acids, Peptides, and Proteins.<br>Topic 18: The Organic Mechanisms of the Coenzymes • Metabolism.<br>Topic 19: Synthetic Polymers.<br>Topic 20: The Organic Chemistry of Drugs.<br><b>Assessments:</b><br>Final Exam  |

## ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.



If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

### **LEARNING REQUIREMENTS**

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

### **TECHNOLOGY POLICY**

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

### **ACADEMIC INTEGRITY POLICY**

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed.



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The record might be shown on the official university transcript.

## **DISABILITY ACCOMMODATION**

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Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.