straighterline

Syllabus

CHEM250 | **Organic Chemistry I**

Course Texts

No need to track down a textbook; these texts are provided digitally as part of the course enrollment:

Smith, Janice. *Organic Chemistry*. 2026 Release., McGraw Hill, 2026.

Course Description

Organic chemistry I is a foundational course that provides students with a comprehensive understanding of the basic principles of organic chemistry. This course covers a range of topics, including structure and bonding, introduction to organic molecules and functional groups, stereochemistry, and understanding organic reactions. It also delves into specific organic molecules, such as alkenes, alkyl halides, alkenes, and alkynes, and their synthesis. Finally, students discover mass, infrared, and NMR spectroscopy.

Learning Outcomes

After completing this course, students will be able to:

1. Predict geometry from a valid Lewis structure.
2. Correlate curved arrows to show the reaction between a nucleophile and an electrophile.
3. Order the highest and lowest energy conformations using Newman projections.
4. Determine if two non identical compounds are constitutional isomers, enantiomers, or diastereomers.
5. Calculate ΔHo of a reaction.
6. Predict the appearance of the product(s) of an Sn1 or Sn2 reaction.
7. Predict the appearance of all products of an elimination reaction.
8. Calculate degrees of unsaturation.
9. Contrast reactions of acetylide anions.
10. Use spectroscopy to identify compounds

Course Prerequisites

It is recommended that students complete General Chemistry or its equivalent before enrolling in this course.

Academic Integrity Statement

Academic integrity is the pursuit of scholarly activity in an honest, truthful and responsible manner. Violations of academic integrity include, but are not limited to, plagiarism, cheating, fabrication and academic misconduct. Failure to comply with the Academic Integrity Policy can result in a failure and/or zero on the

attempted assignment/examination, a removal from the course, disqualification to enroll in future courses, and/or revocation of an academic transcript.

Course Completion Policy

In order for a course to be considered complete, **all required coursework must be attempted, submitted, and graded.** Required coursework consists of graded assignments. Any Academic Integrity Policy violations may prevent a course from being considered complete.

Assessment Types

StraighterLine courses may include any combination of the assessment types described below. Review the descriptions to learn about each type, then review the Course Evaluation Criteria to understand how your learning will be measured in this course.

Benchmarks
Benchmarks test your mastery of course concepts. You have 3 attempts, and your highest score counts. **Note:** Cumulative Benchmarks (final exams) only allow 1 attempt and use a browser-based examination integrity tool.

Capstones
Capstones are project-based assessments that help you apply concepts to real-world scenarios. You have 2 attempts, and your highest score counts.

Checkpoints
Checkpoints are quick knowledge checks on important course concepts. All are open-book, and most have 1-3 attempts.

AI Use-Case Policies

StraighterLine Capstone assessments operate under one of three AI Use-Case Policies. These designations are selected intentionally to support learners in developing digital literacy, ethical reasoning, and authentic communication skills. Each model requires students to engage meaningfully with the course outcomes while adhering to academic standards.

Independent Work Requirement: Capstones with this designation must be completed independently without using AI tools. The goal is for learners to showcase their own understanding and skills without AI assistance. Students are expected to generate and submit original work developed solely through their own reasoning and effort.

AI-Assisted Planning Option: Capstones with this designation may allow AI tools to support brainstorming and assessment planning. If allowed, students will be asked to document any AI assistance by noting how it informed their work. Documentation must be included within the assignment or in a designated reflection field. Examples include describing how an AI tool helped organize an outline, generate ideas, or surface sources for further exploration.

AI-Integration Requirement: Capstones with this designation require AI tools as part of the learning process. Students will be asked to reflect upon their AI interactions and AI contributions to the assessment.

Reflections must include which tools were used, how they were used, and what insights students gained from the process. This promotes transparency, ethical use, and metacognitive skill-building.

Course Evaluation Criteria

Your score provides a percentage score and letter grade for each course. A passing percentage is 70% or higher.

There are a total of 1000 points in the course:

Assessment	Points	Learning Outcomes
Checkpoint 1: Structure and Bonding	5	1, 2
Checkpoint 2: introduction to Organic Molecules and Functions	5	2
Checkpoint 3: Alkanes	5	3
Benchmark 1: Checkpoints 1-3	110	1, 2, 3
Checkpoint 4: Stereochemistry	5	4
Checkpoint 5: Understanding Organic Reactions	5	5
Benchmark 2: Checkpoints 4-5	110	4, 5
Benchmark 3: Checkpoints 1-5	200	1-5
Checkpoint 6: Alkyl Halides and Nucleophilic Substitution	5	6
Checkpoint 7: Alkyl Halides and Elimination Reactions	5	7
Checkpoint 8: Alkenes and Addition Reactions	5	8
Benchmark 4: Checkpoints 6-8	115	6-8
Checkpoint 9: Alkynes and Synthesis	5	8, 9
Checkpoint 10: Spectroscopy	5	10
Benchmark 5: Checkpoints 9-10	115	9, 10
Benchmark 6: Checkpoints 1-10	300	1-10
Total	1000	

Course Roadmap

This roadmap provides an overview of the checkpoints and lessons covered in this course.

Checkpoint 1: Structure and Bonding

- Textbook: Checkpoint 1 Reading Assignment: Chapter 1
- Structure and Bonding
- Checkpoint 1: Chapter 1 Video Playlist

Checkpoint 2: Introduction to Organic Molecules and Functional Groups

- Textbook: Checkpoint 2 Reading Assignment: Chapter 3
- Introduction to Organic Molecules and Functional Groups
- Checkpoint 2: Chapter 3 Video Playlist

Checkpoint 3: Alkanes

- Textbook: Chapter 3 Reading Assignment: Chapter 4
- Alkanes
- Checkpoint 3: Chapter 4 Video Playlist

Checkpoint 4: Stereochemistry

- Textbook: Checkpoint 4 Reading Assignment: Chapter 5
- Stereochemistry
- Checkpoint 4: Chapter 5 Video Playlist

Checkpoint 5: Understanding Organic Reactions

- Textbook: Checkpoint 5 Reading Assignment: Chapter 6
- Understanding Organic Reactions
- Checkpoint 5: Chapter 6 Video Playlist

Checkpoint 6: Alkyl Halides and Nucleophilic Substitution

- Textbook: Checkpoint 6 Reading Assignment: Chapter 7
- Alkyl Halides and Nucleophilic Substitution
- Checkpoint 6: Chapter 7 Video Playlist

Checkpoint 7: Alkyl Halides and Elimination Reactions

- Textbook: Checkpoint 7 Reading Assignment: Chapter 8
- Alkyl Halides and Elimination Reactions
- Checkpoint 7: Chapter 8 Video Playlist

Checkpoint 8: Alkenes and Addition Reactions

- Textbook: Checkpoint 8 Reading Assignment: Chapter 10
- Alkenes and Addition Reactions
- Checkpoint 8: Chapter 10 Video Playlist

Checkpoint 9: Alkynes and Synthesis

- Textbook: Checkpoint 9 Reading Assignment: Chapter 11
- Alkynes and Synthesis
- Checkpoint 9: Chapter 11 Video Playlist

Checkpoint 10: Spectroscopy

- Textbook: Checkpoint 10 Reading Assignment: Mass Spectroscopy
- Textbook: Checkpoint 10 Reading Assignment: Infrared Spectroscopy

- Textbook: Checkpoint 10 Reading Assignment: Nuclear Magnetic Resonance Spectroscopy
- Mass Spectroscopy
- Infrared Spectroscopy
- Nuclear Magnetic Resonance Spectroscopy
- Checkpoint 10: Spectroscopy Video Playlist

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