



CHELMSFORD HIGH SCHOOL

INTRODUCTION TO ORGANIC CHEMISTRY SYLLABUS 2023-2024

COURSE DESCRIPTION

Organic chemistry is a second year chemistry course that provides an introduction to carbon-containing compounds. The course is focused on the chemical structure of hydrocarbons and their derivatives. The course will cover organic nomenclature, mechanisms, stereochemistry, IR Spectroscopy, Mass Spectroscopy and NMR analysis. The continued development of laboratory skills - including small molecule synthesis and analysis - and the multiple ways to report results will also be a major focus of the course.

Prerequisite: Successful completion of Chemistry

REQUIRED TEXTS

None

COURSE GOALS and STUDENT LEARNING OUTCOMES:

By the end of the course, students will be able to...

- Recognize functional groups of molecules
- Utilize multiple methods and techniques to draw organic molecules
- Discuss the three dimensional shape of organic molecules
- Name basic organic molecules
- Predict the product of basic substitution reactions by drawing reaction mechanisms
- Use experimental data to confirm the identity of a compound

COURSE STANDARDS

[DESE STANDARDS LINK](#)

PERSONS WITH DISABILITIES

Chelmsford High School is committed to supporting the success and well-being of all students, regardless of varying abilities and levels of adaptive skills. The Special Education office provides services and resources to empower each student to attain their highest level of academic success and learning independence.

ACADEMIC INTEGRITY

At Chelmsford High School, students are expected to maintain high moral and ethical standards, as exemplified by the final sentence of our mission statement: *"A spirit of respect is fostered, as members take responsibility for their actions and acknowledge the rights and differences of others."* (CHS Mission Statement)

Students should respect themselves, other students, staff members and the school. The acts of cheating and plagiarism violate expectations that students will exhibit respectful, ethical behavior.

[The Academic Honor Code](#) exists to address the issues of cheating and plagiarism.

GRADING POLICIES

Please connect with individual teachers for specific information regarding grading. Students will be able to monitor academic progress biweekly through X2/ASPEN.

Students are strongly encouraged to take advantage of the academic support programs and services (such as PRIDE Block, after-school help, etc.) available to them to help ensure and support success. Information about these services can be provided by your teacher, guidance counselor, or administration.

COURSE SKILLS

The following skills are addressed in this course:

- Asking questions (for science) and defining problems (for engineering)
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using math and computational thinking
- Constructing an explanation (for science) and designing a solution (for engineering)
- Engaging in an argument stemming from evidence
- Obtaining, evaluating, and communicating information

COURSE OUTLINE

Introduction to Organic Chemistry is divided into 3 Parts:

Part 1: Structure of Organic Molecules

- Lewis Structures
- Isomers
- Functional Groups
- IUPAC Naming
- Modeling
- Stereochemistry
- Chirality

Part 2: Substitutions and Elimination Reactions

- Reaction Mechanisms
- Substitution reactions
- Elimination reactions

Part 3: Small Molecule Synthesis and Identification

- Esterification Reactions
- Synthesis of Aspirin
- IR

- NMR
- Recrystallization

This syllabus and course outline are subject to change as Chelmsford High School seeks to continually improve the learning experiences for all students.

“We foster PRIDE* in our pursuit of excellence.”

PRIDE refers to our five core values – Perseverance, Respect, Integrity, Dedication, and Empathy. These five pillars represent our points of emphasis in supporting the development of quality students and quality citizens.