

**Massasoit Community College**  
**Organic Chemistry I, CHEM 201**

**Course description:** This is a study of the main classes of organic compounds including an introduction to natural products (proteins, nucleic acids, lipids, and carbohydrates). The reaction mechanisms, the synthesis and general properties of alkanes, alkenes, alkynes, alcohols, and haloalkanes are discussed. Stereochemistry is also introduced. Nucleophilic substitution, elimination, and radical chain reactions are discussed. The laboratory is both preparative and analytical using classical and instrumental experimental techniques. Lecture: 3 hours Laboratory: 4 hours

**Prerequisite:** General Chemistry II (CHEM152) or equivalent, or Permission of Instructor

**Textbook:** \*Smith, Organic Chemistry, 6<sup>th</sup> edition, McGraw-Hill publisher, with Connect program

\*Chemistry 34201 Signature Lab Series Manual (Cengage Publisher) (need to buy at Massasoit's bookstore)

\*Lab Notebook with carbon-copy pages

**Course Objectives:** Students at the end of the course should be able to:

- Review of VSEPR, Lewis structures, Types of bonding
- Discuss Bronsted-Lowry acid-base theory in terms of organic molecules
- Determine acidity of molecules using inductive effect, resonance, and hybridization
- Identification of functional groups
- Determining stereochemistry using R-S nomenclature and Fischer projections
- Drawing chiral molecules

- Alkane and Cycloalkanes: Nomenclature, Conformations, Physical properties, and common reactions
- Haloalkane discussion: Nomenclature, Physical properties, Preparation, Common reactions
- Reaction mechanisms for nucleophilic substitution ( $S_N1$  and  $S_N2$ ) and  $\beta$ -eliminations ( $E1$  and  $E2$ )
- Identify alcohol reactions, physical properties, reactions, and thiol reactions
- Alkene discussion: Nomenclature, Physical properties, Common reactions
- Understand reaction mechanisms
- Alkyne discussion: Nomenclature, Physical properties, Preparation, Common reactions
- Identify radical reactions, radical steps
- From lab: perform boiling points and melting points of compounds, gas chromatography analysis, distillation experiments, sublimations, calculate yields, general set up of glassware of distillation and reflux experiments

### **Grading Policy**

The final grade will be based upon quizzes, exams, problem sets, labs, and homework.

**There is NO EXTRA CREDIT!**

A	94-100
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	less than 60

## **Additional Resources**

1. Access and Disability Resources (ADR) provides accommodations to students who qualify for services based on a documented disability. Students interested in accessing classroom or testing accommodations need to register with ADR, and need to have an Accommodation Letter for the current semester. Students can contact ADR at 508-588-9100 X 1807 or by e-mail at [adr@massasoit.mass.edu](mailto:adr@massasoit.mass.edu) for further information.

2. **Office of Diversity and Inclusion**

Massasoit Community College is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, stalking, or retaliation, we encourage you to report it to Yolanda Dennis, Chief Diversity Officer and Title IX Coordinator, Office of Diversity and Inclusion, at 508-588-9100, x1309 or [ODI@massasoit.edu](mailto:ODI@massasoit.edu) or the Associate Dean of Students & Deputy Title IX Coordinator, Joseph DiMaria, 508-588-9100, x1417, Brockton Campus, Student Center, Room 208A, [jdimaria@massasoit.mass.edu](mailto:jdimaria@massasoit.mass.edu). While you may talk to a faculty member, understand that as a “responsible employee” of the College, the faculty member must report what you share to the College’s Title IX Coordinator and/or Deputy Title IX Coordinator. On and off campus resources and interim measures are available to assist you. Information about both of these policies can be found at [www.massasoit.edu/title-ix](http://www.massasoit.edu/title-ix) and [www.massasoit.edu/eoo](http://www.massasoit.edu/eoo). We are here to support you

# Labs for Organic Chemistry I

1. Using Microscale Techniques
2. Measuring melting points of compounds and mixtures
3. Identifying an Unknown compound using Infrared Spectroscopy
4. Separating cyclohexane and toluene using distillation
5. Separating Camphor from Beta-carotene by Sublimation
6. Separating and Identifying mixture by gas chromatography
7. Studying SN1 and SN2 reactions: Nucleophilic Substitution
8. Synthesis of Aspirin