Massasoit Community College
Organic Chemistry II, CHEM 202

Course description: This is a continuation of the study of the main classes of organic compounds, including aldehydes, ketones, carboxylic acids, amines, and aromatics. The reaction mechanisms, the synthesis and the general properties of these compounds are discussed. The techniques of MS, NMR, and IR spectroscopy will be introduced. The laboratory is both preparative and analytical using classical and instrumental experimental techniques. Lecture: 3 hours Laboratory: 4 hours
Prerequisite: Organic Chemistry I (CHEM201) or equivalent, or Permission of Instructor

Textbook: *Smith, Organic Chemistry, 6th 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:

- Understand reaction mechanisms
- Alkyne discussion: Nomenclature, Physical properties, Preparation, Common reactions
- Interpret the MS spectrum of organic compounds
- Interpret the NMR spectrum of organic compounds
- Interpret the IR spectrum of organic compounds
- Describe oxidation and reduction reactions;
- Name and draw benzene and its derivatives; discuss the physical properties
- Understand benzene and its derivatives reaction mechanisms
- Show synthesis reactions with benzene and its derivatives
- Reaction mechanisms for electrophilic aromatic substitution
- Name and draw aldehydes and ketones; discuss the physical properties
- Understand aldehyde and ketone reaction mechanisms

- Name and draw carboxylic acids and its derivatives discuss the physical properties
- Understand carboxylic acid reaction mechanisms and the synthesis
- Name and draw amines; discuss the physical properties
- Understand amine reactions and their mechanisms
- Understand carbonyl condensation reactions and their mechanisms
- 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, labs, and homework. I will **NOT** be using the Gradebook in CANVAS. The grade CANVAS posts will not be accurate!

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

Attendance Policy:. You are responsible for the material you missed. Check CANVAS for the material as soon as possible. Lateness to lab will not be tolerated as safety issues and labs procedures will be discussed during the first minutes of labs. If you are more than 15 minutes to late, you will receive a zero for the lab.

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 for further information.

Labs for Organic Chemistry II

1. Dehydrating cyclohexanol
2. Using Nuclear Magnetic Resonance Spectroscopy to identify an unknown compound
3. Isolating caffeine from tea
4. Nucleophilic addition to Carbonyl: Grignard reaction with an aldehyde
5. Preparing Isopentylacetate by the Fisher esterification
6. Acetaminophen: The Acetylation of p-aminophenol
7. Friedel-Crafts Acylation: Synthesis of 4-Methoxyacetophenone
8. Azo-dye synthesis