SCHOOL OF STEM SYLLABUS

TERM:

INSTRUCTOR:

COURSE CODE: CHP-225

OFFICE HOURS:

COURSE TITLE: Organic Chemistry I

OFFICE LOCATION:

DAY(S) AND TIME(S):

EMAIL:

LOCATION:

PHONE:

COURSE PREREQUISITE: CHP - 211

CREDITS: 4

COURSE DESCRIPTION:
This is the first of a two-course sequence of introductory organic chemistry. The physical and chemical properties of organic compounds, including aliphatics, alicyclics, and aromatics are studied through an examination of their structure, preparation, reactivity, and spectral properties. The study of organic functionality centers in the hydroxyl and carbonyl groups. The laboratory component includes separation and purification techniques and other synthetic procedures.

STUDENT LEARNING OUTCOMES:
Learning objectives in Organic Chemistry 1 include student understanding of:

1. The geometries and structures of carbon-based compounds, the tetravalence of carbon atoms, and the localgeometries that result from sp, sp2, and sp3hybridization.
2. The common and important functional groups in organic compounds.
3. The composition and structures of hydrocarbon compounds and geometric isomerism.
4. Stereoisomerism; chirality of tetra-substituted carbon atoms; R and S enantiomers; and diastereoisomerism.
5. The standard organic chemistry reaction mechanisms: substitution, elimination, and addition reactions.
6. The preparation, structures, and reactions of alkyl halide compounds. The reactivity of electron deficient carbons. Nucleophilicity and structures of nucleophiles.
7. The preparation, structures, and reactions of alkene and alkyne compounds.
8. The fundamental description of spectroscopic methods of analysis including mass spectrometry, infrared, and nuclear magnetic resonance spectroscopy. Determinations of chemical structure on the basis of spectroscopic evidence.

TEXTBOOK AND SUPPLEMENTAL MATERIALS:

"*Organic Chemistry"* 9th Edition, Cengage Learning Publishing

Author(s): John McMurry

ISBN-13: 978-1-305-08211-3

Lab Manual specific to CHP-225

GRADING POLICY:

Three exams	75 points
Quizzes	5 points
Lab	5 points
Home Works	5 points
Presentation	5 points
Class Participation	5 points

SAMPLE COURSE SCHEDULE:

Week 1 Introduction to the course, grading policy, course Requirements. Safety Rules in the laboratory, Glassware
Chapter 1: Structure and Bonding

Week 2 Chapter 1: Structure and Bonding

Week 3 Chapter 2: Polar Covalent Bonds; Acids and Bases
EXP. 1 (Lab 1 - Melting Point)

Week 4 Chapter 2: Polar Covalent Bonds; Acids and Bases

Week 5 Chapter 3: Organic Compounds: Alkanes and their Stereochemistry
EXP. 2 (Lab 2 - Boiling Point)

Week 6 Chapter 4: Organic Compounds: Cycloalkanes and their Stereochemistry

Week 7 Review (1,2,3,4) Exam 1
EXP. 3 (Lab 3 - Distillation)

Week 8 Chapter 5: Stereochemistry at Tetrahedral Centers

Week 9 Chapter 6: An Overview of Organic Reactions
EXP. 4 (Lab 4 - Crystallization)

Week 10 Chapter 7: Alkenes: Structure and Reactivity

Week 11 Review (5,6,7)

EXP. 5 (Lab 5 - Sublimation)

Exam 2

Week 12 Chapter 08: Alkenes: Reactions & Synthesis

Week 12 Chapter 9: (Alkynes: An Introduction to Organic Synthesis)
EXP. 6 (Lab 7 - Thin-Layer Chromatography)

Week 13 Chapter 10: Organohalides

Week 13 Chapter 11: Reactions of Alkyl Halides: Nucleophilic Substitutions & Elimination

EXP. 7 (Lab 8 -Extraction of Caffeine from Tea)

Week 14 Chapter 11: Reactions of Alkyl Halides: Nucleophilic Substitutions & Elimination
Week 14 Review (8,9,10,11)
EXP. 8 (Lab 9 - Isomers)

Week 15 Final Exam

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https://www.hccc.edu/administration/academic-affairs/syllabus-addendum.html