Sinclair Community College
444 E. Third St.
Dayton, OH 45402

Master Syllabus

CHE 2111 - Organic Chemistry I

Division: Science, Mathematics and Engineering

Department: Chemistry

Credit Hour Total: 5.0 **Lecture Hrs:** 4.0 **Lab Hrs:** 3.0

Prerequisite(s): CHE 1221

Date Revised: December 2014

Course Description:

The study of alkanes, stereochemistry, alkyl halides, organometallic compounds, alcohols, ethers, epoxides, alkenes, alkynes, aromatic hydrocarbons and spectroscopic methods of organic analysis. Four classroom, three lab hours per week.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency

Course Outcomes:

Alkenes and Alkynes
Demonstrate an understanding of the structure, nomenclature and chemical reactions of alkenes and alkynes.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Isomerism and Stereochemistry
Demonstrate an understanding of the structural, constitutional and stereoisomers of organic compounds.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Advanced Bonding Theory
Demonstrate an understanding of covalent bonding and how it applies to carbon and other elements commonly found in organic compounds.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Alkyl Halides
Demonstrate an understanding of the properties and chemical reactions of alkyl halides.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Alcohols, Ethers and Related Compounds
Demonstrate an understanding of the structure, properties and functions of alcohols, ethers and related compounds.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Spectroscopy
Demonstrate an understanding of the use of infrared (IR), nuclear magnetic resonance (NMR) and ultraviolet (UV) spectroscopy and how these techniques are employed to identify organic compounds.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Aromatic Compounds
Demonstrate an understanding of the structure, nomenclature and chemical reactions of aromatic compounds.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Free Radical Reactions
Demonstrate an understanding of free radical reactions and their use as a synthetic pathway.

Assessment Method: Locally developed exams
Performance Criteria: 70% of exam questions answered correctly

Outline:

Atoms and Molecules - A Structural OverviewOrbitals and Their Role in Covalent BondingStructural Isomerism, Nomenclature and AlkanesStereochemistry of Organic MoleculesAlkyl Halides; Substitution and Elimination ReactionsFree-Radical Reactions; Organometallic CompoundsAlcohols, Ethers, and Related CompoundsSpectroscopy I: Infrared and Nuclear Magnetic ResonanceSpectroscopy II: Ultraviolet Spectra, Color and Vision, Mass SpectraAlkenes and AlkynesAromaticity, Benzene, and Substituted Benzenes