A. Course Description

Credits: 4

Prerequisites:

CHEM 231 Organic Chemistry I AND
MATH 115 College Algebra

OR

CHEM 231 Organic Chemistry I AND
MATH 120 Precalculus

Lab Hours/ Weeks:

Corequisites: None

Lecture Hours/ Week :

MnTC Goals: Goal 03 - Natural Science, Goal LS - Upper Division Liberal Studies

The second semester of a comprehensive course in organic chemistry. This course introduces organic functional groups that include oxygen, nitrogen, and aromatic systems and related reaction mechanisms, multi-step synthetic routes, polymers, and introduce the chemical structures common in many biomolecules. Instrumentals methods (e.g. NMR, IR, MS, UV) are discussed in greater detail, and molecular modeling software used to assist in visualizing structures and reaction mechanisms, and in the interpretation of various spectra. Intended for biology majors and chemistry minors.

B. Course Effective Dates: 12/15/2012 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Be prepared for success in upper division courses and graduate and/or professional study that requires knowledge of organic chemistry.
2. Expand and apply chemistry knowledge gained in first semester organic chemistry course to include functional groups that include oxygen, nitrogen, and aromatic systems.
3. Recognize and identify chemical structures common in many biomolecules.
4. Understand and apply knowledge of reaction mechanisms, multi-step synthetic routes, and polymers.
5. Understand, use and interpret in detail the results from instrumentals methods that are common in organic chemistry (e.g. NMR, IR, MS, UV).
6. Use molecular modeling software to assist in visualizing structures and reaction mechanisms, and in the interpretation of various spectra.
7. Use this knowledge in problem-solving in chemistry.

E. Learning Outcomes (MN Transfer Curriculum)

Goal 03 - Natural Science

1. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
2. Demonstrate understanding of scientific theories.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

Goal LS - Upper Division Liberal Studies
G. Special Information

Note: First day attendance required except by instructor permission. Must be taken concurrently with CHEM 332L except by instructor permission.