**Course Outline for:** CHEM 1001 Real World Chemistry and Lab

## A. Course Description

1. Number of credits: 4
2. Lecture hours per week: 3
   Lab hours per week: 2
3. Prerequisites: None
4. Corequisites: None
5. MnTC Goals : Goal 3: Natural Sciences

This course, designed for non-science majors, is an introduction to basic chemical concepts and principles with an emphasis on a conceptual understanding of chemistry. Topics will focus on various applications of chemistry in the world today and students will explore these applications in the lab. This course is suitable for students who may not have a strong math or science background.

## B. Date last reviewed: May 2021

## C. Outline of Major Content Areas

There are four "Tools of a Chemist" topics that are taught in every CHEM 1001 section. These include the following:

1. The scientific method as a problem solving tool
2. Analyzing scientific information
3. Atoms, molecules, elements, and compounds
4. Chemical reactions

Additional topics will be included at the discretion of the instructor. These may include:

- Evaluating reliability of scientific claims
- Forensics
- Food and Chemistry
- Chemistry and Art
- Designer Drugs
- Chemistry and the Environment
- Pseudoscience
- Automotive chemistry
- Consumer products
- Alternate fuels

## D. Course Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Demonstrate an understanding of basic chemical principles and theories and apply them to describing the physical world. (3a)
2. Demonstrate an understanding of how chemists approach problem solving. (2a,c and 3a)
3. Communicate opinions and ideas as well as experimental data, analyses, and conclusions. (2d, and 3c)
4. Apply the scientific method and sound experimental design to solve various problems in the laboratory. (2a,c and 3b,c,d)
5. Perform lab techniques correctly using appropriate safety procedures (3b, 3c)
6. Analyze lab data (3b, 3c)
7. Communicate lab results (2a, 3c)

**E. Methods for Assessing Student Learning**

Assessment methods are at the discretion of the instructor and may include homework, exams/quizzes, special projects, group work, and a semester long capstone project.

**F. Special Information** None