

# Minnesota State College Southeast

## CHEM 1110: Survey of Chemistry

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites:

This course requires any of these four prerequisites

MATH 0522 - Pre-College Math (2 cr)

A score of 61 on test Accuplacer Elementary Algebra

A score of 259 on test Accuplacer NG Quantitative Reasoning

A score of 20 on test ACT Math

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

As a one-semester introduction to the field of chemistry this course is designed to allow students to understand how chemistry relates to everyday life by looking at classification of matter, reactivity, solutions and organic compounds. This course is intended for non-science majors interested in early childhood education or students wanting an introduction to the field of chemistry and does not require previous experience in chemistry. (MnTC goal 3) (Prerequisite: Accuplacer Elementary Algebra score of 61 or MATH0522) (4 credits: 3 lecture/1 lab)

**B. COURSE EFFECTIVE DATES:** 07/20/2016 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Matter and Measurements
2. Chemical Bonding and Reactions
3. Stoichiometry
4. Solutions
5. Organic Chemistry

#### **D. LEARNING OUTCOMES (General)**

1. Classify matter and make measurements of matter while dealing with the uncertainty inherent in those measurements
2. Understand energy as it relates to potential and kinetic energy, the formation and breaking of chemical bonds and exothermic and endothermic reactions
3. Differentiate between elements, compounds and mixtures macroscopically and microscopically
4. Predict names and chemical formulas of molecular and ionic compounds
5. Demonstrate understanding of scientific theories, including atomic theory and chemical reactions
6. Classify, balance and identify common chemical reactions
7. Understand solutions on a molecular level, and calculate molar and percent concentrations of solutions
8. Understand, draw and name organic molecules including saturated and unsaturated hydrocarbons and derivatives
9. Adopt the scientific method, laboratory techniques, data analysis and safe techniques in the chemistry laboratory
10. Make connections between the observed world and the chemistry it is defined by
11. Develop problem solving skills as related to chemical principles and converting between chemical quantities

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. 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.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

This course was previously CHEM 2510.