

# North Hennepin Community College

## CHEM 1061: Principles of Chemistry I

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 0

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires any of these three prerequisites

Placement into MATH 1170 or MATH 1200

Placement into MATH 1221

MATH 1150 - College Algebra (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This course is a study of the basic concepts of Chemistry, with an emphasis on atomic theory, stoichiometric relationships, kinetic-molecular theory, molecular structure, and chemical bonding as related to the gas and liquid and solid phases. The lab portion with experiments includes observation, data collection, and mathematical applications that support the concepts being studied in class. (3 hours lecture, 3 hours lab)

Placement in this class will be determined by student college assessment score and/or successful completion of Math 1150 with a grade of C or better.

**B. COURSE EFFECTIVE DATES:** 07/17/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Matter and Measurement, Atoms and Elements, Molecules, Ions and their Compounds, Chemical Equations and Stoichiometry, Chemical Reactions, Principles of Reactivity and Energy Relationships, Atomic Structure, Electron Configuration and Chemical Periodicity, Bonding and Molecular Structure, Gases and Their Properties - the fundamental concepts and quantitative relationships along with the associated mathematical problems and the rationale.

### D. LEARNING OUTCOMES (General)

1. Define chemistry terms and explain scientific theories. (MnTC Goal 2, Comps. a; MnTC Goal 3, comp.a, NHCC ELO 1)
2. Utilize multiple chemistry topics in practical lab scenarios and problem solving. (MnTC Goal 2, comps. a, c; MnTC Goal 3, comps. a, b, c; NHCC ELOs 1, 2, 4)
3. Develop awareness of the importance of chemistry in the world and its relevance in everyday activities. (MnTC Goal 2, comps. a, c; MnTC Goal 3, comp. d; NHCC ELOs 1, 3)
4. Recognize the interdisciplinary relationship among the science disciplines. (MnTC Goal 3, comp. d; NHCC ELOs 1, 3, 4)
5. Perform laboratory skills following safety guidelines. (MnTC Goal 2, comps. a, b, c; MnTC Goal 3, comps. b & c, NHCC ELOs 1, 2)
6. Analyze statistical and graphical data sets. (MnTC Goal 3, comp. a, b, c; NHCC ELOs 1, 2)
7. Analyze experimental findings and communicate them in writing. (MnTC Goal 3, comp. a, b, c; NHCC ELOs 1, 2)
8. Identify and use resources in order to teach yourself course concepts. (NHCC ELOs 1, 2, 3)

## **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.
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.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted