

# Inver Hills Community College

## CHEM 1010: Introductory Chemistry

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: \*.\*

Prerequisites:

This course requires any of these six prerequisite categories

1. MATH 0840 - Introductory Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 2)

Or

2. A score of 76 on test Accuplacer Elementary Algebra

Or

3. A score of 22 on test ACT Math

Or

4. A score of 250 on test Accuplacer NG Quantitative Reasoning

Or

5. A score of 250 on test Accuplacer NG COMP Quantitative Reason

Or

6. A score of 1148 on test MN Comprehensive Assessment Math

Corequisites: None

MnTC Goals: Goal 02 - Critical Thinking, Goal 03 - Natural Science

Introduces basic principles and concepts of chemistry to students who previously have had no chemistry or who desire a basic review of chemistry. This course is a lab science course designed for non-science majors and for students who need a basic chemistry course before enrolling in college chemistry.

Approved safety goggles and a lab apron are required. Prerequisites: MATH 0840 with a grade of "C" or higher OR higher level math placement, either within the last 2 years.

**B. COURSE EFFECTIVE DATES:** 01/01/1998 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Acids, bases, and salts: 5%
2. Chemical Bonding: 12.5%
3. Chemical Nomenclature and Chemical formulas: 12.5%
4. Chemical reactions/predicting products, balancing of chemical equations and classification of reactions: 10%
5. Early Atomic Theory: 5%
6. Matter: 10%
7. Stoichiometry: 7.5%
8. The Mole Concept: 10%
9. Solutions: 5%
10. Modern Atomic Theory and the Periodic Table: 12.5%
11. Measurement and the metric system: 10%

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

1. Obtain physical measurements as accurately as the instruments allow
2. Apply methods of scientific inquiry such as the Scientific Method
3. Define chemical terms and concepts
4. Describe the various atomic models
5. List the information the atomic models convey
6. List the limitations of each atomic model
7. Predict how chemical bonding occurs between elements
8. Predict products of chemical reactions using chemical nomenclature and other necessary information from various tables; relate chemical reactions to contemporary issues
9. Calculate masses and moles of elements and compounds either by themselves or in chemical reactions
10. State the most fundamental laws of chemistry
11. Illustrate how each fundamental law of chemistry is used
12. Describe the differences between acids, bases, and salt solutions, determine their pH and relate these properties to contemporary issues
13. Describe the nature of solutions and factors that affect solubility
14. Students will recognize characteristics of hazardous wastes and describe safe handling, storage, and disposal appropriate for this course

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

### Goal 02 - Critical Thinking

1. Gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.
2. Imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.
3. Analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.

### 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