

# MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

## COURSE OUTLINE

DEPT. CHEM

COURSE NUMBER:1100

NUMBER OF CREDITS: 3

Lecture: 2 Lab: 1 OJT 0

<b>Course Title:</b>
Introduction to Chemistry

<b>Catalog Description:</b>
Introduction to Chemistry introduces fundamental theories and applications of chemistry including measurement, atomic theory, bonding theory, nomenclature, chemical quantities, chemical reactions, states of matter, solutions, acids and bases, and nuclear chemistry. This course is for students with no recent background in chemistry and is intended for non-science majors and students preparing for General Chemistry I. This course includes a lab.

<b>Prerequisites or Necessary Entry Skills/Knowledge:</b>
High school algebra (or) MATH 1107 (or) placement by multiple measures.

**FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)**

Goal 3: Natural Sciences:   X   by meeting the following competencies:

- Demonstrate understanding of scientific theories.
- 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.
- Communicate their experimental findings, analyses, and interpretations both orally and in writing.
- Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

<b>Topics to be Covered</b>
Chemistry and Measurements
Matter and energy
Atoms and elements
Electronic structure of atoms and periodic tables
Ionic and molecular compounds
Chemical quantities
Chemical reactions
Stoichiometry

Bonding and properties of solids and liquids
Gases and gas laws
Solutions
Reaction rates and chemical equilibrium
Acids and bases
Oxidation and reduction
Nuclear chemistry

### Student Learning Outcomes

Identify and convert between various units of measurement including metric and SI systems.
Write in the language of chemistry, including chemical formulas, names of elements and compounds, and chemical equations.
Demonstrate the relationship between moles, molar mass, and particles by using conversion factors to correctly solve chemistry problems associated with the above terms.
Describe the structure of atoms.
Describe the structure of compounds and intermolecular forces.
Balance chemical equations and calculate chemical quantities utilizing stoichiometry.
Classify chemical reactions, states of matter, and mixtures
Define and identify acids and bases.
Apply gas laws by solving problems.

Is this course part of a transfer pathway: Yes ☐ No ☒

Revised Date: 12/2021