North Hennepin Community College

CHEM 1000: Chemistry and Society

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 0

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science, Goal 10 - People/Environment, Goal 03 - Natural Science, Goal 10 - People/Environment

This is a basic introduction to chemistry in the everyday world, with emphasis on the role that chemistry plays in personal and professional lives. It is intended for anyone seeking to become a better informed citizen of our technological society. Basic chemical principles will be introduced and their impact on society will be discussed. The course enables students to use concepts of chemistry to think critically about current issues in science and technology. No background in Chemistry or other Natural Sciences is presumed; a strong background in math is not required. Heavy use of the internet for research and communication will be an important component of this course. This course is recommended for non-science majors looking to fulfill the science course with lab component. (3 hours lecture / 3 hours lab)

B. COURSE EFFECTIVE DATES: 08/26/2004 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Course content may include but is not limited to: Basic information about atoms, molecules, elements, compounds, mixtures, states of matter, physical and chemical changes, hydrocarbons, fossil fuels and polymers. Issues pertaining to energy resources, industrial chemistry, consumer health, global warming and several types of pollution will be explored and discussed. Heavy use of the internet for research and communication is mandatory.

D. LEARNING OUTCOMES (General)

1. Explain the formation of compounds using the atomic theory. (MnTC G3, comp. a and MnTC G2, comp. a; NHCC ELO 1)
2. Discuss the manner by which elements and compounds react to give new chemical species. (MnTC G3, comp. a; NHCC ELO 1)
3. Explain the differences and similarities in the three states of matter. (MnTC G3, comp. a; NHCC ELOs 1, 2)
4. Describe physical and chemical changes. (MnTC G3, comp. a; NHCC ELO 1)
5. Perform laboratory experiments that explore the above concepts. (MnTC G3, comp. b & c; NHCC ELOs 1, 2)
6. Debate issues relating to current and historical environmental challenges, such as the use of pesticides in the agricultural industry, the use of mercury and lead in our homes and workplaces, developing different forms of energy given the worlds dwindling resources, production and use of polymers, cancer causing chemicals, the chemical industry, chemical production and their effect on our society. (MnTC G10, comps. b, c, d, e, f; MnTC G3, comp. d; MnTC G2, comps, a, b, c, d; NHCC ELOs 2, 3)

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

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.

Goal 10 - People/Environment

1. Discern patterns and interrelationships of bio-physical and socio-cultural systems.

Goal 03 - Natural Science

1. 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.
2. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
3. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

Goal 10 - People/Environment

1. Describe the basic institutional arrangements (social, legal, political, economic, religious) that are evolving to deal with environmental and natural resource challenges.
2. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
3. Propose and assess alternative solutions to environmental problems.
4. Articulate and defend the actions they would take on various environmental issues.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

1. Knowledge of Human Cultures and the Physical and Natural World--Through study in the sciences, mathematics, social sciences, humanities, histories, languages, the arts, technology and professions.

2. Intellectual and Practical Skills--Including: Inquiry and analysis; Critical and creative thinking; Written and oral communication; Quantitative literacy; Information literacy; Teamwork and problem solving.

3. Personal and Social Responsibility and Engagement--Including: Civic knowledge and involvement--campus, local and global; Intercultural knowledge and competence; Ethical reasoning and action; Foundations and skills for lifelong learning.