C-ID Descriptor
Environmental Chemistry

Descriptor Details

- **Descriptor Title**: Environmental Chemistry
- **C-ID Number**: 105
- **Units**: 3.0
- **Date of Last Revision**: 6/7/2022 09:42:46 AM PDT

General Description

This course presents the fundamentals of chemistry as applied to selected contemporary environmental topics concerning the atmosphere, water, solids, and green chemistry.

Prerequisites

Elementary algebra or higher or eligibility for transfer-level mathematics

Corequisites

No information provided

Advisories

Reading proficiency in English

Content

Chemistry Fundamentals:

- Atoms and Chemical Bonding

- Chemical Equations and Reactions
- Solutions
- Organic Chemistry (Hydrocarbons, Functional Groups, Natural and Synthetic Polymers)
- Scientific method: Benefits and Limitations

Environmental Topics: Contemporary topics such as:

- Atmosphere: (Description of the atmosphere ozone hole, smog, Chemical reaction cycles, Chemistry of nitrogen compounds, chemistry of oxygen compounds. Role of the Sun's radiation)
- Water: (pH, metal and non metals (mercury and arsenic), organic pollutants, radioactivity in water, eutrophication)
- Solids: particle formation and the role in of the particles in the atmosphere.

Green Chemistry: Solvents

Lab Activities

Objectives

At the conclusion of this course, the student should be able to:

1. Apply scientific reasoning in contexts involving chemistry and the environment
2. Use chemical theories, principles, and models, in conjunction with the scientific method, to analyze environmental phenomena involving chemistry and society
3. Critique the benefits and limitations of applying the scientific method to problems in the analysis of environmental phenomena involving chemistry
4. Explore contemporary environmental topics independently

Evaluation Methods

Examinations
Homework
Lab work
Portfolios

Projects
Written papers and/or reports
Quizzes

Textbooks

Environmental Chemistry, Collin Baird, W.H. Freeman

Environmental Chemistry, Manahan, CRC Press

Principles of Environmental Chemistry, Girard, Jones and Bartlett Publishers

Materials from the ACS Green Chemistry Institute (available on the web)