

COURSE OUTLINE

CHEM-105

Chemistry and Society

3 Credits

Science Core Course

HOWARD COMMUNITY COLLEGE

Description

After successful completion of this course, the student will have an understanding of basic chemical concepts and knowledge of the benefits of chemical technology to the consumer. The student will also understand the complexity of the major environmental problems plaguing our nation and the planet. Co-requisite: CHEM-115. (3 hours weekly)

Statement on General Education and Liberal Learning

A liberal education prepares students to lead ethical, productive, and creative lives and to understand how the pursuit of lifelong learning and critical thinking fosters good citizenship. General education courses form the core of a liberal education within the higher education curriculum and provide a coherent intellectual experience for all students by introducing the fundamental concepts and methods of inquiry in the areas of mathematics, the physical and natural sciences, the social sciences, the arts and the humanities, and composition. This course is part of the general education core experience at Howard Community College.

Overall Course Objectives

Upon completion of this course, the student will be able to:

1. Interpret basic chemistry facts and principles.
2. Achieve a scientific spirit of inquiry, search and completion of tasks.
3. Develop an appreciation of chemistry as it is related to modern chemical technology.
4. Develop an appraisal of the risks associated with chemical technology.
5. Appreciate the responsibilities associated with being a consumer in a modern technological and democratic society.
6. Learn to recognize and write condensed chemical formulas.
7. Analyze the relationship between nutrition and good health.
8. Apply basic chemical principles to solve simple quantitative and qualitative problems.
9. Apply problem solving techniques such as visualization, dimensional analysis, and GLV to simple quantitative and qualitative problems.
10. Describe how the goods and substances that we use in our daily lives affect us and the environment.

Major Topics

- I. Introduction to Chemistry
- II. Atoms and Elements

- III. Chemical Bonding
- IV. The Nucleus
- V. Nuclear Energy and Medical Applications
- VI. Oxidation and Reduction
- VII. Organic Chemistry
- VIII. Petroleum
- IX. Acids and Bases
- X. Solids, Liquids & Surfaces
- XI. Food
- XII. Fats and Oils
- XIII. Carbohydrates
- XIV. Proteins
- XV. Minerals and Vitamins
- XVI. Health Foods, Junk Foods and Chemical Additives
- XVII. Poisons, Toxins, Hazards and Risks
- XVIII. Cosmetics and Personal Care
- XIX. Chemicals and the Mind

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

Final grades will be calculated on the basis of exams, quizzes, and homework.

Writing: Specific writing assignments will be determined by the individual faculty member.

Other Course Information

This course is a Science elective, Science core course, and an Arts and Sciences elective.