

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
CHM 102 - INTRODUCTORY CHEMISTRY II (4 CR.)

Course Description

Emphasizes experimental and theoretical aspects of inorganic, organic, and biological chemistry. Discusses general chemistry concepts as they apply to issues within our society and environment. Designed for the non-science major. Part II of II. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

The purpose of this course is to provide a general background in chemistry for non-science majors.

Course Prerequisites/Corequisites

Prerequisite: CHM 101 or equivalent

Course Objectives

As a result of the learning experience provided in this course, the student should be able to:

- Identify the properties of simple organic compounds
- predict and explain the typical reactions of simple organic compounds
- name and write formulas for simple organic compounds
- identify the characteristic structures of carbohydrates, lipids, fats, hormones, vitamins, proteins, nucleic acids, enzymes
- illustrate the metabolism and functions of the above compounds in life processes

Major Topics To Be Included

- A. Nature of organic compounds
 - 1. Classification
 - 2. Nomenclature
 - 3. Structure and physical properties
 - 4. Chemical properties
 - 5. Isomerism
 - a. structural
 - b. geometric
 - c. optical
 - 6. Uses and hazards

- B. Classes of organic compounds
 - 1. Saturated and unsaturated hydrocarbons
 - 2. Aromatic hydrocarbons
 - 3. Halogen derivatives of hydrocarbons
 - 4. Alcohols
 - 5. Ethers
 - 6. Aldehydes
 - 7. Ketones
 - 8. Acids
 - 9. Esters
 - 10. Amides
 - 11. Amines
 - 12. Organic compounds of phosphorus and sulfur

- C. Biochemistry: Structures and reactions of:
 - 1. Carbohydrates

2. Lipids
3. Proteins and DNA
4. Enzymes

Optional Topics

- Digestion
- Metabolism
- Hormones and vitamins
- Bodily fluids
- Environmental chemistry
- Nutritional chemistry

CHM 102 Lab Objectives

As a result of the laboratory learning experiences, the student should be able to:

1. Practice safe procedures in the laboratory
2. Demonstrate competencies in:
 - precise weighing
 - Interpretation of graphical data
 - pH measurement
 - volume measurement
 - quantitative measurement
 - titration
 - qualitative analysis