CHM 151 - GENERAL CHEMISTRY II

Course Description

A second semester course covering chemical reactions in aqueous solution including acid-base and oxidation and reduction reactions, properties of solutions, chemical kinetics, gaseous equilibria, acids and bases, acid-base equilibria, pH, common ion effect, buffer systems, solubility product constant, thermodynamics, enthalpy, entropy, and free energy, electrochemistry, and nuclear chemistry. The laboratory will cover the above topics using quantitative and qualitative procedures. The course also involves problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 lab course.

Credit Hours

4

Contact Hours

5

Lecture Hours

3

Required Prerequisites

CHM 150, CHM 150L, CHM 150R; MTH 111; ENG 111, all with a grade of 2.0 or better.

Corequisites

CHM 151L, CHM 151R

General Education Outcomes supported by this course

Quantitative Reasoning

Course Learning Outcomes

Knowledge:

- Describe fundamental scientific and mathematical concepts.
- The basic composition and structure of matter.
- The basic principles involved in matters interactions.
- Mathematical strategies and conventions utilized in chemistry and other sciences.
- Basic patterns and organization as it pertains to chemical reactivity.
- Common methods of representing chemical information and phenomena.

Application:

- Demonstrate the ability to apply appropriate problem solving strategies.
- Formulate strategies to achieve problem solving goals.
- Evaluate scenarios to determine which scientific and mathematical principles apply.
- Use standard laboratory equipment, modern instrumentation, and classical techniques to carry out experiments.

Integration:

- Connect chemistry to all aspects of their everyday lives.
- Analyze problems to determine what relevant information is needed to solve.

Human Dimension:

- Interact formally in lab settings and informally during group work to achieve a goal.
- Relate everyday observations and events in their lives to chemistry.

Caring - Civic Learning:

- Explain observed phenomena in terms of the chemical and mathematical principles involved.
- Develop logical approach to problem solving.
- Observe chemistry in context of their lives.

Learning How to Learn:

- Create plans to recognize patterns.
- Summarize complicated conceptual ideas.
- Apply new problem solving skills and strategies.