

General Chemistry II

Class

CHEM 1412

Colligative properties, kinetics, chemical equilibrium, acid-base concepts, thermodynamics, electrochemistry, and nuclear chemistry. These principles will be illustrated in an accompanying laboratory. THIS COURSE IS INTENDED FOR STUDENTS IN SCIENCE OR PRE-PROFESSIONAL PROGRAMS. Three hours lecture and three hours laboratory per week.

Course Learning Objectives

When this course is completed, the student will have learned to:

- Determine the effect of solutes on colligative properties of solutions.
- Determine the rate of a reaction and its dependence on concentration, time, and temperature.
- Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
- Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
- Identify and balance oxidation-reduction equations, and solve redox titration problems.
- Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
- Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
- Define nuclear decay processes.

Required Textbooks

Chemistry from OpenStax, free online at www.openstax.org/details/chemistry. **Lab Text:** General Chemistry 1442 Laboratory Manual, Sixth edition, ISBN-10 9781609046644

Disabilities

ADA Statement:

Any student with a documented disability (e.g. learning, psychiatric, vision, hearing, etc.) may contact the Office on the Weatherford College Weatherford Campus to request reasonable accommodations. *Phone:* 817-598-6350 *Office Location:* Office Number 118 in the Student Services Building, upper floor. *Physical Address:* Weatherford College 225 College Park Drive Weatherford, TX.

Academic Integrity

Academic Integrity is fundamental to the educational mission of Weatherford College, and the College expects its students to maintain high standards of personal and scholarly conduct. Academic dishonesty of any kind will not be tolerated. Academic dishonesty includes, but is not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials including unauthorized use of Generative AI. Departments may adopt discipline specific guidelines on Generative AI usage approved by the instructional dean. Any student who is demonstrated to have engaged in any of these activities will be subject to immediate disciplinary action in accordance with institutional procedures.

Lab Fee

\$24.00