

CH/CHE/CHEM 222Z General Chemistry II

For more detailed information, see CCN Reports & Memos on the [Educator Resources—Common Course Numbering](#) webpage.

CCN Course/Course Information

Chemistry

Course Number and Prefix: CH/CHE/CHEM 222Z

Course Title: General Chemistry II

Course Credits: 5 for lecture and lab. (Institutions will divide these credits between lecture and lab so that the total credits for both courses equals 5 credits.)

Course Description: Explores and applies principles presented in CH/CHE/CHEM 221Z to the study of the solid, liquid, and gaseous states of matter. Principles of stoichiometry, thermochemistry, kinetics, and foundational equilibrium are explored and applied to the study of aqueous and gas-phase chemical reactions. CH/CHE/CHEM 222Z is a lecture course; CH/CHE/CHEM 228Z is the laboratory component.

Course Learning Outcomes:

Students will be able to

1. Apply stoichiometry to a variety of problems involving reactions, gases, liquids, solutions, thermochemistry, kinetics, and equilibrium expressions.
2. Apply kinetic molecular theory and gas laws to predict the behavior of gases at various conditions.
3. Identify types of intermolecular forces and apply them to physical properties of solids, liquids, and solutions.
4. Describe solution concepts and factors affecting solution properties.
5. Determine the effects of different factors on chemical reaction rates and examine the role of catalysis in modifying these rates.
6. Apply concepts of thermochemistry to explain thermal energy transfer and the energy changes that accompany chemical and physical changes.
7. Identify and apply appropriate equations related to gas laws, solutions, colligative properties, thermochemistry, kinetics, and equilibrium expressions.

Teachout Recommendation:

The committee recommends that the 2025-2026 academic year be designated as a teachout year for students that began the general chemistry series prior to Fall 2025. As the topics in the newly aligned CH/CHE/CHEM 221Z/227Z, 222Z/228Z, 223Z/229Z differ from those taught in the unaligned courses, students could miss topics by switching mid series. Several institutions currently offer delayed “trailer” sections of each course. This proposed teachout would facilitate completion of the sequence by students already on that schedule.

All schools should be allowed to offer the pre-Z CH 222 and CH 223 alongside the CCN aligned courses for the **first** academic year of offering the newly aligned courses. This minimizes the negative impact on students who need to finish the series if they completed CH 221 before Fall 2025. CH 221 (pre-Z) does not need to be included in the teachout plan as students entering the series would begin in CH/CHE/CHEM 221Z and CH/CHE/CHEM 227Z in the Fall of 2025.

