

CH/CHE/CHEM 223Z General Chemistry III

The following provides a summary of the 2024 Recommendation Report for the CCN Chemistry Subcommittee. Transfer Council recommends that due to changes in course information under [OAR 715-025-0065 through 0115](#), colleges and universities should ensure students' academic progress is not disrupted. Courses completed before CCN changes should count toward graduation, even if requirements shift. Holding students harmless means honoring their efforts, supporting them through transitions, and keeping learning—not compliance—the central focus. CCN course information should be adopted as written. For more detailed information on what can be added to the course description and course learning outcomes, see the [CCN Revised Framework](#) and for more general information, see CCN Reports & Memos on the [Educator Resources—Common Course Numbering](#) webpage.

Approved CCN Course Information

Date Approved:

November 21, 2024

Catalog Dates:

Required to begin appearing in the 2025-26 catalog.

Review Timeline:

- First Annual Review: Winter 2027
- First Triennial Review: Winter 2030

Course Number and Prefix:

CH, CHE, or CHEM 223Z

Course Title:

General Chemistry III

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:

Builds upon the principles presented in CH/CHE/CHEM 222Z, explores thermodynamics and chemical equilibrium, and applies them to the study of aqueous acid-base reactions, solubility, and electrochemistry. CH/CHE/CHEM 223Z is a lecture course; CH/CHE/CHEM 229Z is the laboratory component.

Course Learning Outcomes:

Students will be able to

1. Apply concepts of thermodynamics to explain the favorability of chemical reactions.

2. Apply the principles of spontaneity, entropy, free energy, and the laws of thermodynamics to predict and rationalize the behavior of chemical reactions.
3. Interpret the behavior and relative strengths of acids and bases, buffers, and the hydrolysis of salts.
4. Analyze and evaluate equilibrium reactions including solubility, acids and bases, and other equilibria.
5. Predict responses of various chemical systems to changing conditions using equilibrium calculations and Le Chatelier's Principle.
6. Use redox reactions and electrochemical principles to determine cell potentials and to analyze the relationship between voltage, free energy, and equilibrium.
7. Identify or formulate and apply the appropriate equations related to electrochemistry, thermodynamics, equilibrium reactions, acids, bases, and buffers.

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.

Review Cycle:

There will be an annual review cycle of these courses beginning 2027. The annual review will have a twofold purpose:

1. to review the transfer effectiveness of the courses and
2. to gather information about challenges, concerns, or changes needed from the OPU and CCs.

These reviews are to take place in winter term 2027. Every third year beginning 2030, the subcommittee will conduct a deeper review of the alignment of these courses; this is the only time that the subcommittee will consider a vote to modify the aligned content of the course, using the previous two years of data. The choice in these third-year reviews will be to either affirm our existing alignment decisions or to revise a particular aspect to keep our curriculum based on the data gathered from the previous two years. We would like as many members as possible of the original subcommittee to be invited to participate in these discussions. Historical memory and original context will be useful in informing future decisions.

