

# Chemistry (CHEM)

---

**CHEM 5000. Workshop for Teachers. 3 Hours.**

A workshop for middle school and high school chemistry teachers, designed to improve subject mastery. Content and level of presentation will be designed to broaden participant's background in chemistry and will be related to topics taught in middle and high school chemistry.

**CHEM 5320. Environmental Chemistry. 3 Hours.**

Prerequisites: CHEM 1211, CHEM 1211L or CHEM 1211LH, CHEM 1212, CHEM 3401, and CHEM 3402. Development of a general understanding of how microscopic properties of atoms and molecules can affect macroscopic changes in the environment. Basic chemical concepts, will be applied to complex environmental processes with emphasis on current environmental concerns. The course will involve the completion of a significant independent project. Field trips will be required of all students.

**CHEM 5801. Physical Chemistry I. 4 Hours.**

Prerequisites: CHEM 3402, MATH 2262, and PHYS 2212K with a grade of C or better. A theoretical and mathematical treatment of the fundamental theories and laws of chemistry with an emphasis on thermodynamics. Permission for graduate credit must be arranged with the instructor prior to enrolling in the course and will involve the completion of a significant project.

**CHEM 5802. Physical Chemistry II. 4 Hours.**

Prerequisite: CHEM 5801. A theoretical and mathematical treatment of the fundamental theories and laws of chemistry with an emphasis on quantum mechanics, kinetics, and statistical mechanics. Permission for graduate credit must be arranged with the instructor prior to enrolling in the course and will involve the completion of a significant project.

**CHEM 6420. Physical Organic Chemistry. 3 Hours.**

Prerequisites: CHEM 3402, CHEM 3802. A study of methods used to elucidate organic reaction mechanisms. Topics covered include: reaction kinetics, isotope effects; linear free energy relationships; general acid and base catalysis and the acidity functions; reactive intermediates including free radicals, carbenes, carbanions, and carbocations; symmetry controlled reactions; photochemistry. Permission for graduate credit must be arranged with the instructor prior to enrolling in the course and will involve the completion of a significant project.

**CHEM 6810. Computational Chemistry. 2 Hours.**

Prerequisites: CHEM 3802. Computational and modeling software will be introduced through projects involving systems in physical chemistry and spectroscopy as well as organic chemistry, inorganic chemistry, and biochemistry. Computational predictions will be correlated with laboratory experiments. Permission for graduate credit must be arranged with the instructor prior to enrolling in the course and will involve the completion of a significant project.