Graduate and Professional Catalog 2024-2025

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Chemistry (CHEM)

CHEM 5001. Independent Study in Chemistry. 1-3 Hours.
This course is intended to provide an avenue for selected graduate students to engage in independent studies. Registration is on an individual basis and is restricted to students in residence. Variable Credit (1-3).
Prerequisite: Approval of department chair.

CHEM 5100. Chemical Literature & Seminar. 1 Hour.
Students will participate in the departmental seminar program. This participation will require the preparation and presentation of current research material in a format acceptable to the American Chemical Society.

CHEM 5361. Physical Organic Chemistry. 3 Hours.
This course consists of a study of the effect of structure upon reactivity of organic compounds. The qualitative and quantitative relationship of structure to acidity and basicity in organic chemistry is developed. In addition, reactive intermediates (carbocations, carbanions and free radicals) are studied.
Prerequisite: CHEM 2325, CHEM 2125.

CHEM 5362. Organic Reaction Mechanisms. 3 Hours.
Current models for mechanisms of organic reactions are discussed and applied. The mechanisms and applications of synthetically important reactions are also surveyed. Literature searching for less often utilized but historically important transformations are integral to the course. The methods of determining reaction mechanisms are surveyed along with applications to individual reactions.
Prerequisite: CHEM 2325, CHEM 2125.

CHEM 5367. Chemical Nano Sensing. 3 Hours.
Students learn to set up a conceptual and empirical framework for designing, validating, and using calibrated measurements of chemical abundance within the context of chemical nano sensing. Students employ this framework to examine instruments used to study, and sensors designed to make advantageous use of, nanoscale phenomena in diverse chemical sensing settings.

CHEM 5368. Analytical Spectroscopy. 3 Hours.
Theory and application of selected areas of spectroscopy commonly used in qualitative and quantitative analysis are covered. Topics include atomic and molecular spectroscopy, mass spectrometry, laser analytical methods, fluorescence, phosphorescence, and chemiluminescence and their application to environmental, atmospheric, and bioanalytical problems.
Prerequisite: CHEM 4440.