Chemistry *Courses*

CHE 101 (4) CHEMISTRY AND SOCIETY–GE

Designed to introduce non-science students to the major ideas of modern chemistry and their relevance in contemporary society. Chemical principles are examined and applied to areas such as nutrition, medicine, agriculture, pollution, and energy issues. (Meets a General Education requirement; does not count toward the Chemistry major.)

Prerequisite: Mathematics 099 or equivalent.

CHE 103 (5) INTRODUCTION TO GENERAL, ORGANIC, AND BIOLOGICAL CHEMISTRY–GE

Examination of those aspects of inorganic and organic chemistry that are pertinent to biology and chemistry. Examines the structures and metabolic reactions of biomolecules. Provides a background for nursing, family and consumer sciences and physical education majors. (Meets a General Education requirement; does not count toward the Chemistry major.) One three-hour laboratory each week.

Corequisite: Mathematics 099 or equivalent.

CHE 151 (1) GENERAL CHEMISTRY TUTORIAL

Tutorial session accompanying Chemistry 152. To reinforce problem solving skills necessary for the successful completion of General Chemistry. One hour per week. Can be waived by exam. Graded CR/NC.

Corequisite: Chemistry 152.

CHE 152 (4) GENERAL CHEMISTRY I–GE

Study of the basic principles of modern chemistry. Emphasis on atomic and molecular structure, chemical bonding, gas laws, states of matter, and solutions. One three and one-half-hour laboratory each week.

Prerequisite: Satisfactory high school background or Chemistry 103 or 110.

Corequisites: Mathematics 123 and Chemistry 151 unless waived.

CHE 153 (4) GENERAL CHEMISTRY II

Study of the basic principles of modern chemistry. Emphasis on chemical kinetics and equilibrium, acid base theory, thermodynamics, solubility, metals, and general descriptive chemistry. One three and one-half-hour laboratory each week.

Prerequisites: Chemistry 152.

CHE 211 (2) ANALYTICAL CHEMISTRY

Examination of the theories and techniques of quantitative chemical analysis, with some emphasis on instrumental methods. Two four-hour laboratories each week. Offered on a Quad basis.

Prerequisite: Chemistry 153.

CHE 295 (5) ORGANIC CHEMISTRY I

Study of organic compounds by functional group families with emphasis on structures, reactions, mechanisms, stereochemistry, and synthesis. One four-hour laboratory each week.

Prerequisite: Chemistry 153.

CHE 300 (2) ORGANIC CHEMISTRY II

Examination of basic organic chemistry from a mechanistic perspective. Laboratory introduces microscale techniques. One four-hour laboratory each week. Offered on a Quad basis.

Prerequisite: Chemistry 295.

CHE 325 (5) PHYSICAL CHEMISTRY I

Study of classical thermodynamics as it is applied to physical and chemical systems. Includes discussion of the three laws and their application to thermochemistry, reaction energetics and chemical equilibrium. Reaction kinetics, transport phenomena and kinetic molecular theory are also investigated. One four-hour laboratory each week.

Prerequisites: Chemistry 211, Physics 142 or 242, and Mathematics 144 or 164.

CHE 326 (2) PHYSICAL CHEMISTRY II

Investigation of matter from a quantum chemistry perspective with particular emphasis on the theoretical concepts and their implications for chemical bonding theory and molecular spectroscopy. Offered on a Quad basis. Offered 2007-08.

Prerequisites: Chemistry 211, Physics 142 or 242, and Mathematics 144 or 164.

CHE 327 (1) PHYSICAL CHEMISTRY II LABORATORY

Designed to accompany Chemistry 326. Molecular structure and interactions are investigated using spectroscopic methods including ultraviolet-visible and FT-infrared. One four-hour laboratory each week. Offered on a Quad basis. Offered 2007-08.

Corequisite: Chemistry 326.

CHE 351 (2) ORGANIC QUALITATIVE ANALYSIS

Study of techniques used to identify organic compounds using physical and chemical properties, infrared and nuclear magnetic resonance spectroscopy, and mass spectrometry. Two four-hour laboratories each week. Offered on a Quad basis.

Prerequisite: Chemistry 300 and consent of instructor.

CHE 370 (2) INSTRUMENTAL ANALYSIS

Analytical analysis using instruments such as gas chromatography, high performance liquid chromatography, ultraviolet-visible, FT-infrared and nuclear magnetic resonance spectroscopy, and mass spectrometry. Two four-hour laboratories each week. Offered on a Quad basis. Offered 2007-08.

Prerequisites: Chemistry 211 and consent of instructor.

CHE 450 (4) ADVANCED BIOCHEMISTRY

Detailed analysis of protein and membrane structure. Includes quantitative approaches to the study of enzymes, catalytic mechanisms of enzymes, and a survey of the major metabolic pathways of carbohydrates, lipids, amino acids and nucleic acids. One three-hour laboratory each week. Also listed as Biology 450.

Prerequisites: Biology 210 and Chemistry 295.

CHE 453 (2) ADVANCED ORGANIC CHEMISTRY

Advanced study of organic reaction mechanisms including: the Hammett equation, isotope and substituent effects and orbital symmetry. Modern synthetic reactions are presented. Offered on a Quad basis. Offered 2006-07.

Prerequisite: Chemistry 300 and consent of instructor.

CHE 454 (1) ADVANCED ORGANIC CHEMISTRY LABORATORY

Designed to accompany Chemistry 453. Emphasis on modern synthetic methods and purification of complex reaction mixtures. One four-hour laboratory each week. Offered on a Quad basis. Offered 2006-07.

Corequisite: Chemistry 453.

CHE 466 (2) ADVANCED INORGANIC CHEMISTRY

Development of the broad principles and theories of inorganic chemistry with emphasis on atomic structure, chemical bonding, acid-base theory, and the structural and dynamic features of inorganic compounds. Metal and non-metal substances are considered. Offered on a Quad basis.

Prerequisites: Chemistry 325 or consent of instructor.

CHE 467 (1) ADVANCED INORGANIC CHEMISTRY LABORATORY

Designed to accompany Chemistry 466. Emphasis on the synthesis and characterization of metallic and non-metallic compounds. One four-hour laboratory each week. Offered on a Quad basis, 2006-07.

Corequisite: Chemistry 466.

CHE 475 (2) SPECIAL TOPICS IN CHEMISTRY

Discussion of chemical topics of special relevance to students and faculty. Possible topics include: statistical thermodynamics, group theory and molecular spectroscopy, enzyme kinetics, photochemistry, organometallic chemistry, organofluorine chemistry, medicinal chemistry, electrophilic and radical additions, and mechanistic aspects of water chlorination. Offered on a Quad basis. Offered 2007-08.

Prerequisite: Chemistry 300 and 325 or consent of instructor.

CHE 495 (1) CHEMISTRY SEMINAR

Presentation of papers by students and visiting scholars, and attendance at off-campus seminars.

CHE 499 (1-2) RESEARCH IN CHEMISTRY

An independent investigation, under faculty supervision, of a specific problem at the frontier of a chemical field. Includes weekly discussion sessions. Open to juniors and seniors. May be repeated up to four units.

Corequisite: Chemistry 495 or consent of instructor.

Physical Science *Course*

PSC 110 (4) PHYSICAL SCIENCE – GE

An introductory survey of selected principles in physics and chemistry with a discussion of related societal and environmental issues. (Meets a General Education requirement; does not count toward the Chemistry or Physics major.) One three-hour laboratory each week.

Corequisite: Mathematics 099 or equivalent.