



Course Descriptions

CHEM 111 GENERAL CHEMISTRY I LECTURE (3 units) - An introductory course which includes discussions on atomic theory, atomic and molecular structure, bonding, changes matter undergoes, reactions and chemical equations, solutions, gases, colloidal dispersions and stoichiometry. Co-requisite: General Chemistry Laboratory; College Algebra.

CHEM 111L GENERAL CHEMISTRY I LABORATORY (2 units) - The laboratory part accompanying CHEM 101. This course equips the student with the basic laboratory procedures and skills in General Inorganic Chemistry. It is concerned with the formation of proper habits in laboratory and chemical safety as well as hands-on activities related to topics in Inorganic Chemistry. Co-requisite: CHEM 111.

CHEM 122 GENERAL CHEMISTRY II LECTURE. (3 units) A continuation of CHEM 101. The course includes discussion on electrochemistry, kinetics, thermodynamics, complex molecules, equilibrium and qualitative analysis. Pre-requisite: CHEM 111.

CHEM 122L GENERAL CHEMISTRY II LABORATORY (2 units) The laboratory part accompanying CHEM 122. Co-requisite: CHEM 122.

CHEM 121 ORGANIC CHEMISTRY I (3 units) A study of organic compounds with emphasis in the nomenclature (IUPAC), structure, the physical and chemical properties of molecules in relation to its functional groups, and the preparation and reactions of the different organic molecules. Pre-requisite: CHEM 111.

CHEM 121L ORGANIC CHEMISTRY I LABORATORY. (2 units). The laboratory part accompanying CHEM 122. This course equips the student with the basic laboratory procedures and skills of Organic Chemistry. It is concerned with the formation of proper practices and habits, including laboratory and chemical safety, waste minimization and proper and efficient use of resources. Co-requisite: CHEM 121.

CHEM 222 ORGANIC CHEMISTRY II Lecture. (3 units). A continuation of CHEM 122 with emphasis on the study of organic reactions, mechanisms and molecular orbital theory as a unifying principle in modern organic chemistry. Pre-requisite: CHEM 121.

CHEM 222L ORGANIC CHEMISTRY II LABORATORY. (2 units.) This course equips the student with the basic laboratory skills and procedures of Organic Chemistry. Co-requisite: CHEM 222.

CHEM 213 QUANTITATIVE ANALYTICAL CHEMISTRY – (3 units). The course is designed to give students an understanding of the principles of gravimetric and volumetric analysis, potentiometry and spectrophotometry, analytical measurements and data analysis. Prerequisite: CHEM 122.

CHEM 213L QUANTITATIVE ANALYTICAL CHEMISTRY LABORATORY – (2 units). The laboratory component of CHEM 236 which involves actual gravimetric and volumetric analysis, experiments in potentiometry and spectrophotometry, and applications in measurement and data analysis. Co-requisite: CHEM 213.

CHEM 225 ADVANCED ANALYTICAL CHEMISTRY. (3 units lecture.) This course describes the practice of Analytical Chemistry as an information science, emphasizing statistics, introductory chemometrics and quality assurance. Pre-requisite: CHEM 213.

CHEM 224 INSTRUMENTAL METHODS OF CHEMICAL ANALYSIS – (3 units). This course provides the student knowledge and skills needed for analytical separations and instrumental methods of analysis. The principles of instrumentation, instrument components, limitations of measurements, and selection of appropriate techniques for separations are also discussed. Pre-requisite: CHEM 213.

CHEM 224L INSTRUMENTAL METHODS OF CHEMICAL ANALYSIS LABORATORY – (2 units). The laboratory part accompanying CHEM 224. Co-requisite: CHEM 224.

CHEM 214 INORGANIC CHEMISTRY –(3 units). This course discusses the principles and trends in the chemistry of the elements and on the essentials of structure, bonding, and reactivity of inorganic systems. Pre-requisite: CHEM 122.

CHEM 211 BIOCHEMISTRY (3 units). This course covers the fundamentals of structural components of living matter and how they relate to biological function; the basic chemical processes involved in biological information; metabolism, and reactions occurring in living organisms. Pre-requisite: CHEM 121.

CHEM 211L BIOCHEMISTRY LABORATORY –(2 units). This course introduces the common skills and techniques needed to perform biochemical investigations. It is designed to help students correlate certain principles of biochemistry with experimental facts. Co-requisite: CHEM 211.

CHEM 322 ADVANCED BIOCHEMISTRY– (3 units lecture.) An in-depth study of CHEM 211, this course discusses, in larger details topics on the flow of biological information, metabolism, and chemical reactions that occur in living matter. Pre-requisite: CHEM 211.

CHEM 321 ENVIRONMENTAL CHEMISTRY – (3 units). A discussion on the current concerns and issues relating to environmental pollution. Includes the study of the sources, effects, interactions and controls of substances considered as pollutants of the ecosystem. Also includes a discussion on energy generation and conservation. Three lecture hours each week. Pre-requisite: CHEM 121.

CHEM 314 PRINCIPLES OF INDUSTRIAL CHEMISTRY –(3 units lecture.) A study on the fundamentals of the chemical industry including the production process, operation, design, research and development, economics, and environmental protection. Prerequisites: CHEM 122, CHEM 222.

CHEM 323 READINGS IN CHEMISTRY – (1 to 3 units.) A study of special topics which provide the student with a comprehensive grasp of specific areas in chemistry. The course culminates with both an oral and written presentation of the study. Pre-requisites: CHEM 214, CHEM 222.

CHEM 411 UNDERGRADUATE THESIS 1 – (3 units). Independent active research conducted by senior students under the guidance of a senior faculty adviser. The topic may be basic, applied or theoretical in nature. This course is normally taken in the last year prior to completion of the degree.

CHEM 422 UNDERGRADUATE THESIS 2 – (3 units.) Continuation of CHEM 472. Pre-requisites: CHEM 472.

CHEM 311 SEMINAR IN CHEMISTRY –(1 unit). A oral presentation of a scholarly study on recent topics or current issues in chemistry. Pre-requisites: CHEM 222 & CHEM 213.

CHEM 324 PHYSICAL CHEMISTRY I –(3 units). This course provides the foundations in chemical thermodynamics, physical and chemical equilibria, and an introduction to statistical thermodynamics. Pre-requisites: CHEM 122 and Integral Calculus.

CHEM 324L PHYSICAL CHEMISTRY I LABORATORY – (1 unit). This laboratory course demonstrates the techniques for evaluating physical properties of chemical systems described in the accompanying lecture. Co-requisite: CHEM 324.

CHEM 415 PHYSICAL CHEMISTRY II –(4 units). A continuation of Physical Chemistry I, this course discusses thermodynamic properties of chemical systems with emphasis on non-ideal systems; electrochemistry; transport properties, chemical kinetics; surface chemistry, macromolecules and colloids; photochemistry; solid state and other applications. Pre-requisite: CHEM 324.

CHEM 415L PHYSICAL CHEMISTRY II LABORATORY –(1 unit). This laboratory course demonstrates the techniques for evaluating physical properties of chemical systems described in the accompanying lecture. Co-requisite: CHEM 415.

CHEM 416 QUANTUM CHEMISTRY – (3 units). This course covers the fundamental principles and equations of quantum chemistry and statistical thermodynamics and their applications to atomic and molecular spectroscopy. Pre-requisite: CHEM 324.

CHEM 427 COMPUTATIONAL CHEMISTRY – (3 units). This course focuses on the basic principles of computational chemistry. Both molecular mechanical and quantum mechanical models are covered. A general survey of the important techniques will be presented, followed by theoretical and practical aspects of some of the more important techniques. Pre-requisite: CHEM 324.

CHEM 215 QUALITATIVE AND QUANTITATIVE CHEMISTRY LECTURE. (3 units) The course is designed to give students an understanding of the principles of gravimetric and volumetric analysis, potentiometry and spectrophotometry, analytical measurements and data analysis. Topics also include chemical equilibria and the concepts involved in stoichiometry. Pre-requisite: CHEM 111

CHEM 215L QUALITATIVE AND QUANTITATIVE CHEMISTRY LABORATORY. (2 units) This is the laboratory component accompanying Qualitative and Quantitative Chemistry Lecture. This course is designed to introduce the student the basic skills required to perform chemical analysis based on instrumental methods. Co-requisite: CHEM 215

CHEM 417 PROFESSIONAL SUBJECT REVIEW I. (4 units) This course is a comprehensive review in Organic Chemistry and Analytical Chemistry. Pre-requisite: CHEM 313

CHEM 418 PROFESSIONAL SUBJECT REVIEW II. (4 units) This course is a comprehensive review in General, Inorganic and Physical Chemistry. Pre-requisite: CHEM 324