

CHEMISTRY

CHM 10000 Concepts in Chemistry (4) (GE) This course is an examination of the principles of Chemistry, especially those which find application in the study of biology. Topics to be covered include atomic structure, chemical bonding, intermolecular forces, gas laws, solutions, and chemical energy. This is a course for non-science majors. Laboratory work is included. Lab fee.

CHM 10100 The World of Chemistry (3) (GE) This course serves as a journey through the exciting world of chemistry. The foundations of chemical structures and their behaviors are explored through a combination of lectures and videos. The emphasis will be on the understanding of the principles of chemistry and their application to items in our current daily experiences. This is a course for non-science majors. (No Laboratory)

CHM 10500 Chemistry in Society (3) (GE) This course provides a basis for understanding problems of global proportion facing societies in the coming millennium. Fundamental chemical concepts will provide an understanding of the role chemistry plays in the problems considered, and in their potential resolution or solution. Issues include environmental concerns, energy, hunger and food production, health, pollution, and population considerations. This is a course for non-science majors. (No Laboratory)

CHM 11100 Environmental Science (3) (GE) An introductory course on global environmental issues with an emphasis on chemistry, this course addresses a need to understand the scientific principles along with social, political, and economic background as pertains to topics such as air and water qualities, energy resources, waste management, and toxicology.

CHM 23000 General Chemistry 1 (3) (GE) This course provides a systematic treatment of the principles of chemistry. Topics include the fundamental principles of chemistry, dimensional analysis, basic atomic structure and theory, stoichiometry, general nomenclature, and types of reactions. Prerequisite: MTH 11000 or math placement into higher course.

CHM 23100 General Chemistry 2 (3) (GE) This course is a continuation of CHM 23000. Topics include an advanced review of stoichiometry, gas laws, intermolecular forces, periodic properties, advanced bonding theory, solutions chemistry, molecular structures, and organic nomenclature. CHM 24100 must be taken concurrently with this course. Prerequisite: Grade of C or better in CHM 23000 or LU placement test

CHM 23200 General Chemistry 3 (3) This course is a continuation of CHM 23100. Topics include an advanced solution chemistry, acid-base equilibria, thermochemistry, kinetics, electrochemistry, and nuclear chemistry. CHM 24200 must be taken concurrently with this course. Prerequisite: Grade of C or better in CHM 23100

CHM 24100 General Chemistry 2 Laboratory (1) (GE) This course consists of one 2.5-hour laboratory period per week. Laboratory includes hands-on experimental procedures of general chemistry phenomena. Discussion focuses on mastery of chemistry concepts through class participation and group work. Must be taken concurrently with CHM 23100. Lab fee.

CHM 24200 General Chemistry 3 Laboratory (1) This course consists of one 2.5-hour laboratory period per week. Laboratory includes hands-on experimental procedures of general chemistry phenomena. Discussion focuses on mastery of chemistry concepts through class participation and group work. Must be taken concurrently with CHM 23200. Lab fee.

CHM 30100 Industrial Chemistry (3) This course is an examination of the principles of chemistry as applied to the manufacture of large quantities of chemicals. Topics will include material and energy balances, flow charts, environmental concerns, and the importance of patents in industry. Prerequisite: CHM 23200.

CHM 31100 Applications in Forensic Science (3) This course covers the theory and applications of basic methods of forensic science including: physical properties of glass, soil, hair, fiber, and paint; analytical techniques involving chemical analysis of drugs, alcohol, and bodily fluids; and techniques in DNA fingerprinting and ballistic analysis. Prerequisite: C or better in CHM 23200.

CHM 35100 Analytical Chemistry (5) This course is the study of different qualitative and quantitative analytical techniques such as gravimetric, volumetric, and selective precipitation methods of analysis. Laboratory work is included. Prerequisite: C or better in CHM 23200 & MTH 24200. Lab fee.

CHM 36100 Organic Chemistry I (4) This course is a systematic study of the nomenclature, structures, properties, and reactions of organic compounds with emphasis upon the principles by which chemists predict the properties and reactions of organic compounds. Prerequisite: CHM 23100. Lab fee.

CHM 36200 Organic Chemistry II (4) This course is a continuation of CHM 361. The principles of chemical behavior are applied to many types of organic compounds, including those of biological significance. Laboratory work is included. Lab fee. Prerequisite: Grade of C or better in CHM 36100.

CHM 36300 Biochemistry (4) This course examines the study of the structure and function of the various chemical constituents of living matter. Laboratory work is included. Lab fee. Prerequisites: CHM 36200 and BIO 304.

CHM 37500 Instrumental Analysis (5) This course centers on the study of instrumental methods of chemical analysis including spectrometric and mass analysis as well as separation techniques. Instruments covered, but not limited to, are AA, UV/Vis, FTIR, GC, GC/MS, and X-Ray Diffraction. Emphasis is given to principles of the techniques, method selections and their applications. Laboratory work included. Prerequisite: CHM 35100 and CHM 36100. Lab fee.

CHM 38200 Chemical Equilibria (3) This course is the study of chemical systems in equilibrium and the use of equilibrium constants of several types in calculating the extent to which reactions occur. Prerequisites: CHM 23200 and permission of instructor.

CHM 38300 Spectroscopy and Molecular Structure (3) This course offers an examination of physical and chemical principles involved in the various types of spectroscopy and the use of spectroscopy to determine the structure of molecules. Emphasis is given to nuclear magnetic resonance and infrared absorption spectroscopy, but ultraviolet absorption and mass spectroscopy also are considered. No lab. Prerequisite: CHM 36200.

CHM 39000 Special Topics (3) Special topics of interest in chemistry will be discussed by both students and faculty. Prerequisites: will be based on topic requirements.

CHM 40100 Inorganic Chemistry (3) The chemistry of non transition elements including non-metals and noble gases, emphasizing the periodic character of properties of these elements,

and the relationship between various physical and structural properties with the type of chemical bonding employed by the various elemental groups will be studied. Prerequisite: CHM 36200 and junior standing.

CHM 40200 Inorganic Chemistry of Transition Elements (3) The chemistry of transition metals, emphasizing the unusual bonding properties, stereochemistry, and relationship to reactivity will be investigated. The study includes organometallics, catalysis, and biologically important coordination compounds. Prerequisite: CHM 36200 and junior standing.

CHM 40300 Coordination Chemistry (2) This is a laboratory course covering modern coordination chemistry. The central theme is inorganic coordination chemistry, with emphasis on a variety of common analytical instrumental techniques that are fundamental in the characterization of inorganic compounds. To be taken concurrently with CHM 40100 or CHM 40200. Lab fee

CHM 47100 Physical Chemistry I (3) this course is a theoretical and mathematical study of chemical properties and the methods of predicting physical and chemical changes. The principles of thermodynamics and kinetics are emphasized. Prerequisites: CHM 36100, MTH 27200, and PHY 30100 (or PHY 25100).

CHM 47200 Physical Chemistry II (3) This course is a continuation of CHM 47100 with emphasis upon quantum chemistry as a means of explaining and predicting chemical behavior. Prerequisite: CHM 47100; CHM 47300 must be taken concurrently.

CHM 47300 Physical Chemistry Lab (2) This course is a laboratory course focusing on data acquisition and statistical analysis of thermodynamic and kinetic data. Prerequisite: CHM 47100. CHM 47200 must be taken concurrently. Lab fee.

CHM 47400 Chemical Dynamics (3) This course is the study of both the empirical and the theoretical treatment of chemical reaction rates and the mechanisms that can be devised from them, plus specific treatment of gaseous and atomic reactions, reactions in solution, and very rapid reactions. Prerequisites: CHM 36100, 47100, and MTH 27200.

CHM 48000 Chemistry Internship (3-6) This course offers a practical laboratory experience in a commercial, university, or forensics laboratory. The course may be repeated for credit, not to exceed 9 credit hours total. Prerequisites: Jr chemistry standing & permission

CHM 49000 Seminar (1) This course will provide background for the retrieval of information from the expanse of chemical literature. The course will prepare the student for library research on a topic selected jointly by the student and instructor. Student will present the paper to students and faculty. Prerequisite: Junior or senior status and permission of instructor.