CHEMISTRY (CHEM)

CHEM 1010 Introductory Chemistry (3 Credits)
A survey of and an introduction to the fundamental principles of chemistry. The topics of atomic structure, periodic relationships, chemical bonding, kinetics, gas laws, stoichiometry, solutions, equilibria, and electrochemistry are examined. Topics are covered in less detail than in CHEM 1110, 1210 and 1220. This course is intended for non-science majors. It fulfills the science requirement in the General Studies program. This course does not have additional laboratory time and will not count toward a lab science requirement.
Prerequisites: MATH 1010 with C- or higher OR MATH 1001 with C- or higher OR placement higher than MATH 1010 AND eligibility for ENG 1010
General Education: Scientific Knowledge & Understanding (SCKX)
Elective Code(s): Liberal Arts Elective (LART)
Previous: Legacy Equivalent(s): CHE* 101

CHEM 1110 Concepts of Chemistry (4 Credits)
Introduction to the fundamental principles and the concepts of chemistry. Atomic structure, periodic relationships, bonding, kinetics, and equilibria are examined to permit their use in understanding chemical reactions though in less detail than in CHEM 1210 and CHEM 1220. The laboratory portion stresses the acquisition of skills in scientifically ethical data gathering and in the manipulation of apparatus and materials. Not a pre-requisite for CHE 2210 Organic Chemistry I.
Prerequisites: Eligibility for ENG 1010 AND completion of with a grade of C- or higher in one of the following: MATH 1002 - Math for Science and Technology (this course is not transferrable as a Quantitative Reasoning course for the CSUs) MATH 1010 - Intermediate Algebra MATH 1011 - Applied Algebra with Modeling MATH 1200 - Statistics I MATH 1201 - Statistics I with Computer Applications
MATH 1600 - Pathway to Calculus: College Algebra or any course higher than MATH 1600 in the STEM Mathematics pathway, OR placement into a course higher than MATH 1600 in the STEM Mathematics pathway
General Education: Scientific Reasoning (SCRX)
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 111

CHEM 1120 Principles of Organic Chemistry and Biochemistry (4 Credits)
This one semester lecture and laboratory course is an introductory course to both organic chemistry and biochemistry with a focus on clinical relevancy. Discussions and laboratory applications of the structure and function of organic compounds, carbohydrates, lipids, proteins, nucleic acids, as well as the mechanism of enzyme-catalyzed reactions, metabolism and bioenergetics will be covered.
Prerequisites: CHEM 1110 with a C- or higher OR CHEM 1210 with a C- or higher OR permission of instructor
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 112

CHEM 1210 General Chemistry I (4 Credits)
The first of a two-semester sequence, this course introduces fundamental concepts, models, and techniques including stoichiometry, periodicity, atomic structure, reaction types, and molecular shape. This course also prepares the student for continued study in CHEM 1220 .It is strongly recommended that a student have completed a high-school chemistry course or CHEM 1010 or CHEM 1110.
Prerequisites: MATH 1600 or higher with grade of C or higher or placement higher than MATH 1600 and eligibility for ENG 1010
General Education: Scientific Reasoning (SCRX)
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 121

CHEM 1220 General Chemistry II (4 Credits)
The second of a two-semester sequence, this course builds upon concepts presented in CHEM 1210, including discussions and laboratory applications of intermolecular forces, kinetics, equilibrium, acid-base chemistry, thermodynamics, electrochemistry, and an introduction to nuclear and organic chemistry.
Prerequisites: MATH 1600 or higher with a grade of C or higher or placement higher than MATH 1600; and ENG 1010 with a C- or higher or higher placement than ENG 1010; and CHEM 1210 with a C- or higher.
General Education: Scientific Knowledge & Understanding (SCKX)
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 122

CHEM 2098 Special Topics in Chemistry (1-4 Credits)
This course covers topics of special interest in chemistry for chemistry majors and may encompass independent study. Topics vary by college and semesters and are meant to address current and relevant chemistry topics.
Prerequisites: CHEM 1210 with a grade of C- or higher; or
CHEM 1110 with a grade of C- or higher; and ENG 1010 with a grade of C- or higher.
Elective Code(s): Liberal Arts Elective (LART)
Previous: Legacy Equivalent(s): CHE* 298

CHEM 2310 Organic Chemistry I (4 Credits)
The first part of a two-part sequence designed to present the principles and theories involving the principal groups of carbon compounds. Topics include nomenclature, stereochemistry, and conformational analysis of organic molecules, and the preparation, reactions and mechanisms of alkanes, alkyl halides, alkenes, alkynes, and alcohols. The laboratory activities feature the basic reaction, purification, and separation techniques utilized in organic chemistry, and activities integrated with the theory of the functional groups covered in lecture.
Prerequisites: CHEM 1220 with a grade of C- or higher or instructor's permission
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 211

CHEM 2320 Organic Chemistry II (4 Credits)
ere is a spacing issue. Course description should read The second part of a two-part sequence designed to present the principles and theories involving the principal groups of carbon compounds. Presents nomenclature, preparation and reactions of alcohols, ethers, conjugated double-bond systems, aromatic compounds, aldehydes, ketones, carboxylic acids, esters, amines, and biomolecules. Explains reaction mechanisms when necessary. The laboratory exercises investigate either the preparation or the reaction of the aforementioned chemical species. Laboratory exercises may also include using modern instrumentation to identify organic compounds.
Prerequisites: CHEM 2310 with a grade of C- or higher or permission of instructor
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 212

CHEM 2410 Biochemistry (4 Credits)
This intermediate level course focuses on the structure, function, and properties of biological molecules. The organization of amino acids, lipids, carbohydrates, and nucleic acids are addressed through a discussion of their hierarchical structure, their assembly into essential complexes in biological systems, and their relationship to human disease. Protein function is examined through the study of enzyme kinetics, the characterization of major metabolic pathways, and the interconnectivity of these pathways in tightly regulated networks.
Prerequisites: BIO 1210 with a C- or higher and CHEM 1220 with a grade of C- or higher; or CHEM 2310 with a grade of C- or higher; or instructor's permission
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 220

CHEM 2510 Instrumental Analysis (4 Credits)
This one semester lecture and laboratory course is a theoretical and hands-on introduction to analytical instruments commonly used in chemical, biological, and environmental analyses. Discussions and laboratory application of polarimetry, refractometry, spectrophotometry (infrared, ultraviolet, visible, and atomic absorption), and chromatography (paper, thin layer, gas-liquid, and liquid-liquid). Sample preparation, analysis, and data evaluation will be emphasized.
Prerequisites: CHEM 1220 with C- or higher, or permission of the instructor
Elective Code(s): Liberal Arts Elective (LART)
Additional fees may apply
Previous: Legacy Equivalent(s): CHE* 250