

CHEMISTRY (CHM)

CHM 101 ESSENTIALS OF INORGANIC CHEM 4 Credit

An overview of inorganic chemistry. Topics include scientific methods, tools of science, historical aspects, atomic structure, chemical bonding, gases, liquids, solids, solutions, colloids, and chemical reactions. May be used in preparation for CHM 111.

Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer

Course Attributes: Fulfills ELA Exper. Science

Course Offerings: Hybrid, Lecture, Web Based

CHM 101L ESSNTLS OF INORGANIC CHEM LAB 0 Credit

Co-requisite(s): CHM 101

Grade Mode: Credit/No Credit

Course Offerings: Lab, Hybrid

CHM 102 ESSENTIALS / ORGANIC & BIOCHEM 4 Credit

A survey of organic and biochemical molecules—especially designed for health occupations students—with an emphasis on the names, structures, and functions of key molecular types.

Pre-requisite: CHM 101

Grade Mode: Standard Letter, Audit, Pass/No Pass, Transfer

Course Offerings: Hybrid, Web Based

CHM 102L ESSNTL / ORGANIC & BIOCHEM LAB 0 Credit

Grade Mode: Credit/No Credit

Course Offerings: Lab

CHM 110 CHEMISTRY IN CONTEXT 4 Credit

Elementary treatment of principles of general and organic chemistry for non science majors. This is a non-science majors course designed to help the student acquire a wide and general view of science through chemistry and to reflect the significant role chemistry in environmental science, medicine, forensics, industry and technology. Expected to be offered:

Spring semesters Distance Learning: Fall semester, Odd years

Grade Mode: Standard Letter, Audit, Pass/Fail

Course Attributes: Fulfills ELA Exper. Science

Course Offerings: Hybrid, Web Based

Equivalencies: CHM 110ES

CHM 111 GENERAL CHEMISTRY I 4 Credit

This course covers the study of atoms, ions, ad molecules, theories of bonding, molecular geometries, naming of inorganic compounds, stoichiometry, thermochemistry, and properties of gases, liquids, and solids.

Co-requisite(s): CHM 111L

Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer

Course Attributes: Fulfills ELA Exper. Science

Course Offerings: Hybrid, Lecture, Web Based

CHM 111L GENERAL CHEMISTRY I LAB 0 Credit

Co-requisite(s): CHM 111

Grade Mode: Credit/No Credit

Course Offerings: Lab, Hybrid

CHM 112 GENERAL CHEMISTRY II 4 Credit

This course covers the study of solutions, rates of chemical reactions, chemical equilibrium, acids and bases (including their equilibria), thermodynamics, spontaneity of reactions, and electrochemistry.

Pre-requisite: CHM 111

Co-requisite(s): CHM 112L

Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer

Course Offerings: Hybrid, Lecture, Web Based

CHM 112L GENERAL CHEMISTRY II LAB 0 Credit

Co-requisite(s): CHM 112

Grade Mode: Credit/No Credit

Course Offerings: Lab, Hybrid

CHM 192 SPCL TPC 1-3 Credit

Grade Mode: Standard Letter

Course Offerings: Hybrid, Lecture, Web Based

CHM 261 ORGANIC CHEMISTRY I 4 Credit

A detailed view of structure of organic compounds & their reactions with an emphasis on the mechanisms for their preparation & conversion.

Organic Chemistry I & II follow a mechanistic approach: the functional groups are introduced in terms of how & why they react.

Pre-requisite: CHM 112

Co-requisite(s): CHM 261L

Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer

Course Offerings: Hybrid, Lecture, Web Based

CHM 261L ORGANIC CHEMISTRY I LAB 0 Credit

Co-requisite(s): CHM 261

Grade Mode: Credit/No Credit

Course Offerings: Lab, Hybrid

CHM 262 ORGANIC CHEMISTRY II 4 Credit

A detailed view of the structure & reactions of aliphatic & aromatic organic compounds is continued with an emphasis on mechanisms & synthesis. Organic Chemistry I & II follow a mechanistic approach: the functional groups are introduced in terms of how & why they react.

Pre-requisite: CHM 261

Co-requisite(s): CHM 262L

Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer

Course Offerings: Hybrid, Lecture, Web Based

CHM 262L ORGANIC CHEMISTRY LAB 0 Credit

Co-requisite(s): CHM 262

Grade Mode: Credit/No Credit

Course Offerings: Lab, Hybrid

CHM 340 PHYSICAL CHEMISTRY I 4 Credit

A survey of thermodynamics & quantum chemistry & their applications to molecular studies. Topics include gas laws, energies, chemical equilibrium, quantum effects, & electrochemistry.

Pre-requisite: CHM 112, ENG 117

Co-requisite(s): CHM 340L

Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer

Course Offerings: Hybrid, Lecture, Web Based

CHM 340L PHYSICAL CHEMISTRY LAB 0 Credit

A survey of thermodynamics & quantum chemistry & their applications to molecular studies. Topics include gas laws, energies, chemical equilibrium, quantum effects, & electrochemistry.

Co-requisite(s): CHM 340

Grade Mode: Pass/Fail

Course Offerings: Lab, Hybrid

CHM 341L PHYSICAL CHEMISTRY I LAB 0 Credit

Co-requisite(s): CHM 341

Grade Mode: Standard Letter

Course Offerings: Lab

CHM 342 PHYSICAL CHEMISTRY II 4 Credit

Quantum mechanics, and atomic and molecular structure.

Pre-requisite: CHM 341, MTH 242

Co-requisite(s): CHM 342L

Grade Mode: Standard Letter, Audit, Homestudy, Pass/Fail, Transfer

Course Offerings: Hybrid, Lecture, Web Based

CHM 342L PHYSICAL CHEMISTRY II LAB 0 Credit**Co-requisite(s): CHM 342****Grade Mode: Standard Letter****Course Offerings: Lab, Hybrid****CHM 350 QUANTITATIVE ANALYSIS 4 Credit**

An introductory view of a variety of methods of chemical analysis, their underlying principles & their applications. This includes both classical "wet" methods & modern instrumental methods involving spectroscopy, chromatography, & electrochemistry.

Pre-requisite: CHM 112, ENG 117**Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer****Course Offerings: Hybrid, Lecture, Web Based****CHM 350L QUANTITATIVE ANALYSIS LAB 0 Credit****Co-requisite(s): CHM 350****Grade Mode: Credit/No Credit****Course Offerings: Lab, Hybrid****CHM 360 ADVANCED INORGANIC CHEMISTRY 4 Credit**

Structures and properties of inorganic complexes and compounds. Concepts in bonding, trends in periodic properties, molecular symmetry and its relationship to spectra, solid-state, reaction mechanisms, coordination chemistry.

Pre-requisite: ENG 117, CHM 262**Co-requisite(s): CHM 360L****Grade Mode: Standard Letter, Audit, Homestudy, Pass/Fail, Transfer****Course Offerings: Hybrid, Lecture, Web Based****CHM 360L ADVANCED INORGANIC CHEM LAB 0 Credit**

Lab associated with CHM 360 Advanced Inorganic Chemistry.

Pre-requisite: CHM 262**Co-requisite(s): CHM 360****Grade Mode: Credit/No Credit****Course Offerings: Lab****CHM 380 ENVIRONMENTAL CHEMISTRY 4 Credit**

Environmental chemistry is the study of chemical phenomena that occur in natural places. Students will use fundamental chemistry principles to understand sources, fate, reactivity, and transport of compounds in both natural and polluted environments. We will examine the chemistry of the atmosphere, hydrosphere, and lithosphere. Anthropogenic effects on the environment will be discussed in reference to climate change, air pollution, ozone depletion, use of herbicides and pesticides, and pollution and treatment of water sources.

Pre-requisite: CHM 262**Grade Mode: Standard Letter, Pass/Fail****Course Offerings: Hybrid, Web Based****CHM 392 SPECIAL TOPICS: 1-6 Credit**

Expected to be offered: Sufficient demand

Pre-requisite: ENG 117**Grade Mode: Standard Letter, Audit, Pass/Fail****Course Offerings: Hybrid, Lecture, Web Based****CHM 401 BIOCHEMISTRY I 4 Credit**

A detailed view of proteins, enzyme kinetics, & cellular metabolism. The relationship between structure & function & the regulatory mechanisms by which a cell or organism controls its own activities will be examined.

Pre-requisite: CHM 262, ENG 117**Co-requisite(s): CHM 401L****Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer****Course Offerings: Hybrid, Lecture, Web Based****CHM 401L BIOCHEMISTRY I LAB 0 Credit****Co-requisite(s): CHM 401****Grade Mode: Credit/No Credit, Pass/Fail, Standard Letter****Course Offerings: Lab, Hybrid****CHM 402 BIOCHEMISTRY II 4 Credit**

This course emphasizes biochemical processes that occur in living organisms. It expands upon the material covered in CHM 401 to include additional consideration of metabolism and how it is studied, as well as advanced topics in metabolic diseases, protein biochemistry, and the integration of metabolism. In addition photosynthesis, both the light and dark reactions are covered in detail.

Pre-requisite: CHM 262, ENG 117**Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer****Course Offerings: Hybrid, Lecture, Web Based****CHM 402L BIOCHEMISTRY II LAB 0 Credit****Co-requisite(s): CHM 402****Grade Mode: Credit/No Credit, Pass/Fail, Standard Letter****Course Offerings: Lab, Hybrid****CHM 410 ORGANIC CHEMISTRY III 4 Credit**

This course will offer a detailed view of the structure and reactivity of a variety of organic compounds with continued emphasis on mechanisms, reactions, and synthesis. This is a continuation of CHM 262 that will build upon previous knowledge and address the chemistry of carbonyl compounds and amines as well as biologically important molecules such as carbohydrates, nucleic acids, amino acids, proteins, lipids, and polymers.

Pre-requisite: ENG 117, CHM 262**Grade Mode: Standard Letter, Pass/Fail, Transfer****Course Offerings: Hybrid, Lecture, Web Based****CHM 410L ORGANIC CHEMISTRY III LAB 0 Credit****Co-requisite(s): CHM 410****Grade Mode: Pass/Fail****Course Offerings: Lab, Hybrid****CHM 490 RESEARCH IN CHEMISTRY 1-4 Credit**

Research experience for students in Chemistry. This student initiated undergraduate research project aims to develop abilities for asking sound research questions, designing reasonable scientific approaches to answer such questions, & performing experiments to test both the design & the question. We consider how to assess difficulties & limitations in experimental strategies due to design, equipment, organism selected, etc.

Pre-requisite: ENG 117**Grade Mode: Other to Include Option of IP, Audit, Pass/Fail, Transfer****Course Offerings: IN/FE/Rsrch/Thsis/Prjct/Capstn, Research****CHM 492 SPECIAL TOPICS IN CHEMISTRY 1-6 Credit**

Expected to be offered: Sufficient Demand

Pre-requisite: ENG 117**Grade Mode: Standard Letter, Audit, Pass/Fail****Course Offerings: Hybrid, Lecture, Web Based****CHM 495 INTERNSHIP 1-15 Credit****Pre-requisite: ENG 117****Grade Mode: Standard Letter, Audit, Pass/Fail, Transfer****Course Offerings: IN/FE/Rsrch/Thsis/Prjct/Capstn**

CHM 499 SENIOR THESIS 1 Credit

This upper-division requirement of majors consists of oral & written presentations by students majoring in chemistry & is based on critical evaluation of scientific literature &/or an independent research project.

Pre-requisite: ENG 117

Restrictions: Enrollment limited to students with a classification of Senior

Grade Mode: Other to Include Option of IP, Audit, Pass/Fail, Transfer

Course Offerings: IN/FE/Rsrch/Thsis/Prjct/Capstn, Research