Chemistry

Basic Laboratory and Computation Chemist

CHEMI 0485 - 3 Credits

A study of the metric system, dimensional analysis, density, physical and chemical properties of matter, formulae, gas laws, stoichiometry, and acids and bases. Examination of the rules for presentation of graphical and calculated formats of laboratory measurements. (2 lecture hours, 2 lab hours)

Contemporary Chemistry

CHEMI 1105 - 4 Credits

Introduction to chemical concepts using practical issues and applications to illustrate the principles of chemistry. The language of chemistry, scientific method and measurement, experimentation with data collection, and current issues with application to chemical principles. One year of high school algebra is recommended. This course is not a prerequisite for Chemistry 1212. (3 lecture hours, 3 lab hours)

Concepts and Applications in Nanoscience

CHEMI 1137 - 4 Credits

Inter-disciplinary course combining elements of chemistry, physics and electronics, takes a non-mathematical approach to examine the fundamental scientific principles behind the new field of nanotechnology. The course is intended for non-science majors. The important future role of nanotechnology in society is discussed, using applications in the consumer world and industry involving materials and electronics. The course provides experience from theoretical, laboratory and laboratory simulation perspectives. (3 lecture hours, 3 lab hours)

Intro to Forensic Science & Chemistry

CHEMI 1205 - 4 Credits

Basic principles and uses of forensic science in the United States system of justice. Addresses the application of science to the processes of law, and involves the collection, examination, evaluation and interpretation of evidence. Applies chemical concepts to evidence and law. (3 lecture hours, 3 lab hours)

Survey of General Chemistry

CHEMI 1211 - 5 Credits

Fundamental concepts of general inorganic chemistry including formula naming, atomic structure, stoichiometry, gas laws, solutions, equilibria, redox, acid-base theory and nuclear chemistry.

Intended for health science majors. Not intended for science or engineering majors. Prerequisite: Mathematics 0481 (or college equivalent) with a grade of C or better, or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (4 lecture hours, 3 lab hours)

Survey of Organic Chemistry

CHEMI 1212 - 5 Credits

Introduction to organic chemistry. Nomenclature, structure, physical properties, reactions and synthesis of major organic functional groups. Intended for health science majors. Prerequisite: Chemistry 1211 or Chemistry 1551 (4 lecture hours, 3 lab hours)

Scientific Concepts - Sustainable Energy

CHEMI 1237 - 4 Credits

Non-mathematical approach in examining a range of sustainable energy sources including wind, solar, ethanol, biodiesel, gasification, geothermal, hydrogen and fuel cells. Fundamental laws governing energy conversion in sustainable energy are introduced. Economic and environmental issues and the role of climate change in sustainable energy will be reviewed. Intended for students interested in a career in the renewable energy industry and non-science majors. Provides experience from theoretical, laboratory and laboratory simulation perspectives. (3 lecture hours, 3 lab hours)

Principles of Chemistry I

CHEMI 1551 - 5 Credits

Measurement, the mole concept, composition and reaction stoichiometry, types of reactions, thermochemistry, atomic theories, chemical periodicity, bonding, molecular geometry, and properties and theories of the gaseous, liquid and solid states. Intended for science and engineering students. Prerequisite: Mathematics 1428 (or college equivalent) or Mathematics 1431 (or college equivalent) with a grade of C or better, or qualifying score on the mathematics placement test or a qualifying A.C.T. math score and one year high school chemistry with a satisfactory grade or Chemistry 0485 (or college equivalent) with a grade of C or better (4 lecture hours, 3 lab hours)

Principles of Chemistry II

CHEMI 1552 - 5 Credits

Properties of solutions, chemical kinetics, equilibrium, acid-base theory and equilibria, solubility equilibria, electrochemistry, thermodynamics, coordination chemistry and nuclear chemistry.

Chemistry

Laboratory includes both qualitative and quantitative analysis. Prerequisite: Chemistry 1551 with a grade of C or better (4 lecture hours, 3 lab hours)

Special Project

CHEMI 1800 - 1-3 Credits

Special project courses in chemistry cover topics not otherwise covered by general education courses and other courses in the catalog for the chemistry discipline while building upon academic knowledge and skills acquired in introductory-level chemistry classes. These courses require direct experience and focused reflection in an in-depth study of a specific chemistry topic and/or the critical analysis of contemporary issues in chemistry. They are targeted to self-selected students with an interest in the subject matter and involve active participation. The course delivery incorporates an experiential component of no less than 30% but not to exceed 70%. This experiential component may include field studies, interdisciplinary learning, and/or the practical application of chemistry concepts, theories, principles and methods with a specific focus. All courses require an orientation session to deliver academic and experiential information (syllabus, academic requirements, field preparation, logistics, etc.)

Selected Topics I

CHEMI 1820 - 1-3 Credits

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college Class Schedule. This course may be taken four times for credit as long as different topics are selected. (1 to 3 lecture hours)

Selected Topics II

CHEMI 1821 - 3 Credits

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college Class Schedule. This course may be taken four times for credit as long as different topics are selected. (2 lecture hours, 2 lab hours)

Independent Study

CHEMI 1840 - 1-4 Credits

Exploration and analysis of topics within the discipline to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required (1 to 4 lecture hours)

Introduction to Biochemistry

CHEMI 2213 - 4 Credits

Introduction of biochemical topics of carbohydrates, lipids, proteins, nucleic acids and their subsequent metabolism. Prerequisite: Chemistry 1212 or Chemistry 2551 (3 lecture hours, 3 lab hours)

Organic Chemistry I

CHEMI 2551 - 5 Credits

Bonding principles, functional groups, isomerism, stereochemistry, nomenclature, synthesis and reactions of alkanes, cycloalkanes, alkenes, alkynes, alcohols, and alkyl halides. Addition, elimination, rearrangement and substitution mechanisms. Laboratory stresses microscale techniques, basic separations, purifications, syntheses, and infrared and nuclear magnetic resonance spectroscopy. For chemistry majors, pre-professional students and biology majors. Prerequisite: Chemistry 1552 with a grade of C or better or equivalent (3 lecture hours, 6 lab hours)

Organic Chemistry II

CHEMI 2552 - 5 Credits

Continuation of Chemistry 2551. Nomenclature, properties, reactions and synthesis of conjugated dienes, aromatics, organometallics, alcohols, phenols, ethers, aldehydes and ketones, carboxylic acids and derivatives, and amines. Mechanisms include electrophilic aromatic substitution and nucleophilic addition. Carbohydrates, amino acids, proteins and nucleic acids. Laboratory stresses single and multi-step syntheses along with mass spectrometry, ultraviolet, and carbon-13 nuclear magnetic resonance spectroscopy and integrated spectral analysis. For chemistry majors, pre-professional students and biology majors. Prerequisite: Chemistry 2551 with a grade of C or better or equivalent (3 lecture hours, 6 lab hours)

Special Project

CHEMI 2800 - 1-3 Credits

Special project courses in chemistry cover topics not otherwise covered by general education courses and other courses in the Catalog for the chemistry discipline. These course require direct experience and focused reflection in an in-depth study of a specific chemistry topic and/or the critical analysis of contemporary issue in chemistry. They are targeted to self-selected students with an interest in the subject matter involve active participation. The course delivery incorporates an experimental component of no less than 30 percent but not to exceed 70 percent. This experiential component may include field studies, interdisciplinary learning and/or the practical application of chemistry concepts, theories, principle and methods with a specific focus. All courses require an orientation session to deliver academic and experiential information (syllabus, academic

requirements, filed preparationlogistics, etc.) Prerequisite: At least one course in Chemistry or consent of the instructor.

Advanced Selected Topics I

CHEMI 2820 - 1-3 Credits

Advanced exploration and analysis of selected topics with a specific theme indicated by course title listed in college course schedule. This course may be taken four times for credit as long as different topics are selected. Prerequisite: One other course in the discipline and consent of instructor. (1 to 3 lecture hours)

Internship (Career & Technical Ed)yCoop Ed/Internship Occup

CHEMI 2860 - 1-4 Credits

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship Advanced (Career & Tech Ed)

CHEMI 2865 - 1-4 Credits

Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship (Transfer)

CHEMI 2870 - 1-4 Credits

Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide

appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship - Advanced (Transfer)

CHEMI 2871 - 1-4 Credits

Continuation of Internship (Transfer). Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.