

CHEMISTRY

Cascade Campus
Jackson Hall (JH), Room 210
971-722-5209

Rock Creek Campus
Building 7, Room 202
971-722-7500

Sylvania Campus
Science Technology (ST), Room 312
971-722-4174

DESCRIPTION

Chemistry is the fundamental science of matter – its structure, composition, and transformations. As such, chemistry has wide applications in all the physical, biological, and behavioral sciences. Chemistry is involved in solving some of the most pressing problems facing our society today, such as environmental problems, medical issues, dwindling energy resources, the need for new and better materials, and worldwide food shortages.

Courses in chemistry are offered for students who will transfer to four-year institutions, who are completing requirements for career technical programs, or who are taking courses for personal enrichment. Chemistry courses at PCC are equivalent to freshman and sophomore courses at four-year colleges and universities. Students should check the specific requirements of the institution to which they plan to transfer prior to finalizing their course of study at PCC. For complete listing of Chemistry (CH prefix) courses, see Course Descriptions at the end of the catalog

COURSE DESCRIPTIONS

CH 100 Fundamentals for Chemistry 4.00 Introduces basic chemical principles and computational problems. Provides a foundation for future chemistry courses for or students who have no chemical background and those with minimal problem solving skills. Prerequisite: WR 115, RD 115 and MTH 65 or equivalent placement test scores. Recommended: Students who have completed or are concurrently enrolled in MTH 95 should consider enrolling in CH 104. Audit available.

CH 101 Inorganic Chemistry Principles 5.00 Introduces basic inorganic chemistry with an emphasis on solution chemistry. Fulfills a basic chemistry requirement for programs such as engineering technology, allied health, and others. Prerequisites: WR 115, RD 115, and MTH 65 or equivalent placement test scores. Recommended: one year of high school chemistry. Audit available.

CH 102 Organic Chemistry Principles 5.00 Introduces organic chemistry and biochemistry principles. Emphasizes organic and biochemistry required for application to dental hygiene programs. Includes general principles of organic chemistry; alcohols, aldehydes, ketones, carboxylic acid. Covers structure and function of classes of biomolecules; carbohydrates, lipids, proteins, and DNA. Prerequisites: WR 115, RD 115, and MTH 65 or equivalent placement test scores, and CH 100 or CH 104 or instructor approval. Audit available.

CH 104 Allied Health Chemistry I 5.00 Includes general principles of chemistry; atomic structure, mole concept, chemical reactions, stoichiometry, and gas laws. This is the first course of a three course sequence. Designed for students in a health science program, e.g. Nursing, Medical Laboratory Technician, Vet Tech, or for a laboratory science elective. Prerequisite: WR 115 and RD 115 or equivalent placement test scores. Prerequisite/Concurrent: MTH 95. Audit available.

CH 105 Allied Health Chemistry II 5.00 Includes stoichiometry, gases, oxidation-reduction, acid-base concepts, equilibrium, physical and chemical properties

of solutions, nuclear chemistry, and organic hydrocarbons. This is the second course in a three course sequence. Prerequisite: CH 104 and its prerequisite requirements. Audit available.

CH 106 Allied Health Chemistry III 5.00 Includes fundamental principles of organic chemistry and biochemical processes. This is the third course of a three course sequence. Prerequisite: CH 105 and its prerequisite requirements. Audit available.

CH 110 ChemExcel 1.00 Provides optional peer-led problem-solving sessions designed to promote the success of students in CH 221, 222, 223 general chemistry sequence. Corequisite: corresponding lecture course CH 221, 222, or 223. Pass/no pass only. Audit available.

CH 211 Introduction to Biochemistry 4.00 Introduces the chemistry of biological systems. Principal topics covered are: the structure and function of biological molecules, the chemistry of heredity, metabolism and biological energy. CH 106 or 200-level organic chemistry required. Audit available.

CH 221 General Chemistry I 5.00 Introduces measurements, classification and properties of matter, nomenclature, atomic structure and modern atomic theory, periodic table and chemical periodicity, and chemical bonding. This is the first course in a three course sequence. Recommended for chemistry and other natural science majors, and pre-professional majors in engineering, medicine and dentistry. Recommended: Successful completion of high school or a college chemistry class with a lab component in the last 3 years. Prerequisite: WR 115 and RD 115 or equivalent placement test scores. Prerequisite/concurrent: MTH 111. Audit available.

CH 222 General Chemistry II 5.00 Introduces stoichiometry; chemical reactions and equations; thermo chemistry; physical states of matter including properties of gases, liquids, solids and solutions; an introduction to organic chemistry; and chemical kinetics. This is the second course in a three course sequence. Prerequisite: CH221. Audit available.

CH 223 General Chemistry III 5.00 Introduces acid-base chemistry, ionic equilibria; electrochemistry; nuclear chemistry; thermodynamics; and descriptive chemistry topics. Special topics will be included as time and interest allows. This is the third course in a three course sequence. Prerequisite: CH222. Audit available.

CH 241 Organic Chemistry I 5.00 Introduces functional groups, nomenclature, structure and chemistry of alkanes, alkenes, and alkynes, conjugation in alkenes, concerted reactions (Diels Alder), IR Spectroscopy, stereochemistry, reaction mechanisms and special topics as time and interest permits. This is the first course in a three course sequence. Recommended for chemistry and other laboratory science majors, and pre-professional students in medicine, dentistry, pharmacy, physical therapy, veterinary and chiropractic medicine, etc. Recommended: Successful completion of a year-long college general chemistry class in the last 3 years. Students receive Oregon University Systems upper division credit for Organic Chemistry 241, 242, and 243, upon successful completion of the ACS Organic Exam in CH 243. Prerequisite: (CH221, 222, 223) or (CH104, 105, 106). Audit available.

CH 242 Organic Chemistry II 5.00 Introduces radical reactions; substitution and elimination reaction mechanisms; structure and chemistry of alcohols, ethers, epoxides and their sulfur analogues; introduction to organometallic compounds; arenes and aromaticity; structure and chemistry of aromatic compounds; NMR, UV-VIS and Mass Spectroscopy; special topics are included as time and interest permits. This is the second course in a three course sequence. Students receive Oregon Universities Systems upper division credit for Organic Chemistry 241, 242, and 243, upon successful completion of the ACS Organic Exam in CH 243. Prerequisite: CH 241. Audit available.

CH 243 Organic Chemistry III 5.00 Introduces carboxylic acids, carboxylic acid derivatives, amines, carbohydrates, amino acids, proteins, lipids, nucleic acids, heterocyclic compounds, spectroscopy and selected topics. This is the third course in a three course sequence. Student receive Oregon University Systems upper division credit for Organic Chemistry 241, 242, and 243, upon successful completion of the ACS Organic Exam in CH 243. Prerequisite: CH 242. Audit available.