

# CHEM - Chemistry

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<i>Global Citizenship Program Knowledge Areas (....)</i>	
ARTS	Arts Appreciation
GLBL	Global Understanding
PNW	Physical & Natural World
QL	Quantitative Literacy
ROC	Roots of Cultures
SSHB	Social Systems & Human Behavior

<i>Global Citizenship Program Skill Areas (....)</i>	
CRI	Critical Thinking
ETH	Ethical Reasoning
INTC	Intercultural Competence
OCOM	Oral Communication
WCOM	Written Communication
** Course fulfills two skill areas	

## **CHEM 1040 Applied Chemistry for Technology Based Business (3)**

Students will be taught basic principles in chemistry and apply that knowledge by analyzing chemical products used in industry and everyday life. They will be required to practice critical thinking through the analysis of business structures and how those organizations utilize chemical applications for product development. **GCP Coding: (PNW) (CRI).**

## **CHEM 1050 Concepts in Chemistry (3)**

Concepts in Chemistry explores fundamental concepts within chemistry and will discuss issues that have a chemical basis. Included within the course are topics such as the scientific method, scientific measurements, laws of conservation, chemical bonding, chemical reactions, stoichiometry, acid-based chemistry,

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characterization of organic molecules. **Prerequisites:** CHEM 2100 and CHEM 2101, or permission of the instructor. **Co-requisite:** CHEM 2110.

## **CHEM 3100 Biochemistry I (3)**

### **CHEM 3101 Biochemistry I: Lab (1)**

Studies the structure and function of proteins, enzyme kinetics, carbohydrates, lipids, amino acids, and nucleic acids. Molecular physiology is also reviewed. Laboratory required. Offered in the fall semester. **Prerequisite:** CHEM 2100 or permission of the instructor. **Co-requisites:** CHEM 3100 and CHEM 3101 must be taken concurrently.

## **CHEM 3110 Biochemistry II (3)**

### **CHEM 3111 Biochemistry II: Lab (1)**

Studies metabolism and the techniques and principles of molecular genetics. Offered in the spring semester. **Prerequisites:** CHEM 2100 and CHEM 3100, or permission of the instructor. **Co-requisites:** CHEM 3110 and CHEM 3111 must be taken concurrently.

## **CHEM 3250 Environmental Chemistry (3)**

Covers an advanced study of the chemistry of Earth's water, soil and atmosphere, as well as the pollution of all three. Topics covered include chemistry of natural soils and waters; introductory toxicology; acid deposition and forest decline; drinking water treatment; wastewater treatment; eutrophication; pesticides; toxic organic compounds; toxic heavy metals. An emphasis is placed upon the relationship between chemical properties and biological effects of pollutants. **Prerequisites:** CHEM 2100.

## **CHEM 3251 Environmental Chemistry: Lab (1)**

Laboratory course covering applied analytical chemistry of air, soil, and water, including fundamental instrumentation. Both the natural chemistry of Earth's air, soil and water and the anthropogenic effects on this chemistry are studied. An emphasis is placed on equilibrium kinetics, and the physico-chemical properties of gases, solutions, and solids. **Prerequisite:** CHEM 2100.

## **CHEM 3300 Analytical Chemistry (3)**

An introduction to the general principles of classical quantitative analysis. Topics include sample handling, data treatment, error analysis, standards and calibration, gravimetric, titrimetric and electrochemical methods. Laboratory required. **Prerequisites:** CHEM 1100, CHEM 1101, CHEM 1110 and CHEM 1111. **Co-requisite:** CHEM 3301.

## **CHEM 3301 Analytical Chemistry: Lab (1)**

An introduction to quantitative analytical laboratory techniques. Emphasis is placed on the development of the appropriate skills for precise chemical analysis. Experiments include gravimetric, electrochemical and a variety of titrimetric studies. Error propagation and data handling are also emphasized. **Prerequisites:** CHEM 1100, CHEM 1101, CHEM 1110 and CHEM 1111. **Co-requisite:** CHEM 3300.

## **CHEM 3500 QtDC BT /F1 8 in22s1ppropriate**

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## **CHEM 4430 Bachelor of Science Senior Thesis (4)**

Students working toward a bachelor of science in chemistry will enroll to complete their senior research project in the laboratory. Completion of the project will culminate with a scientific paper and oral presentation of research results at a formal lecture to faculty and peers. **Prerequisite:** BIOL 4400 or CHEM 4400.

## **CHEM 4700 Independent Research in Chemistry I (1-4)**

A specialized course for students working on an independent, research-oriented project in a topic of current interest. Students should select among the equivalent courses BIOL 4700/CHEM 4700/PHYS 4700 for the one that is most consistent with their chosen project. For CHEM 4700, the topic should have a primary basis in chemistry. Also offered during the summer term. May be repeated once for credit if content differs. **Prerequisite:** Permission of the instructor.

## **CHEM 4710 Independent Research in Chemistry II (1-4)**

A specialized course for students working on an independent, research-oriented project in a topic of current interest. Students should select among the equivalent courses BIOL 4710/CHEM 4710/PHYS 4710 for the one that is most consistent with their chosen project. For CHEM 4710, the topic should have a primary basis in chemistry. Also offered during the summer term. May be repeated once for credit if content differs. **Prerequisite:** Permission of the instructor.