

MAJOR REQUIREMENT

CHEMISTRY

MAJOR CODE 1905.00

“PLAN B”

ASSOCIATE IN ARTS DEGREE

The Associate Degree in Chemistry will provide most lower-division requirements for the student planning to transfer to a four-year institution with a Chemistry major, while at the same time establishing a strong basic foundation in this science.

Students who wish to obtain an associate degree in Chemistry may do so by completing the course requirements listed below plus all other WLAC requirements for an associate degree. Transfer students should consult the Counseling Office for major preparation and general education requirements of the particular transfer institution of their Transfer choice.

students who wish to also obtain an Associate Degree may do so by completing all WLAC general education requirements plus at least 18 units

in the major as required by the transfer institution (a total of 60 units for an associate degree).

ASSOCIATE DEGREE (45 UNITS)

REQUIRED COURSES

	UNITS
CHEM 101 General Chemistry I	5
CHEM 102 General Chemistry II	5
CHEM 211 Organic Chemistry for Science Majors I	5
CHEM 212 Organic Chemistry for Science Majors II	5
MATH 261 Calculus 1	5
MATH 262 Calculus II	5
MATH 263 Calculus III	5
PHYSICS 37 Physics for Engineers and Scientists I	5
PHYSICS 38 Physics for Engineers and Scientists II	5

Course Description

CHEMISTRY

12 Environmental Chemistry (3) UC:CSU

Corequisite: Chemistry 13.

Recommended: one year of high school algebra or Mathematics 115.

This course introduces the fundamentals of chemistry governing the forms of matter and their chemical transformations within the context of environmental issues. Specific topics include inorganic and organic reaction and equations, atmospheric pollutants, photochemical smog, acidic deposition (acid rain) and the complex of chemical reactions that result in acidification. Chemistry 12 and Chemistry 13, taken together, can be used to meet CSU general education requirements.

13 Environmental Chemistry Laboratory (1) UC:CSU (Same as Environmental Science 13)

The associated experiments for this laboratory course will complement Chemistry 12. Areas to be explored will include laboratory techniques for safe handling, storage, and transformation of hazardous materials, quality

assurance/control, and chemical instrumentation. Physical and chemical property measurements of aqueous, non-aqueous, and solid samples of environmental importance will also be undertaken.

**51 Fundamentals of Chemistry (5) UC:CSU
(Formerly Chemistry 3)**

Recommended: One year of high school algebra, or Mathematics 115.

This is a descriptive course in inorganic and organic chemistry. Topics include the metric system of measurement; chemical symbols; formulas and nomenclature systems; chemical equations; physical properties including density, solubility and states of matter; chemical properties; acids, bases, buffer and pH; basic principles of equilibrium and an introduction to radioactivity. Organic topics focus on functional group identification including hydrocarbons, organic halides, alcohol, ketones, acids, esters, amines, carbohydrates, lipids and proteins. This course is designed for Nursing and other Allied Health majors, students in Environmental Hazardous Materials, Elementary Education or Liberal Arts who do not intend to take Chemistry 101.

**60 Introduction to General Chemistry (5) UC:CSU
(Formerly Chemistry 10)**

Prerequisite: One year of high school algebra, or Mathematics 115.

This basic chemistry course presents elementary principles of general chemistry, including nomenclature and problem solving. Students whose previous chemistry background is inadequate for Chemistry 101 should take this course in preparation for Chemistry 101. Chemistry 60 is also recommended for students who have been away from high school chemistry for more than two years.

NOTE: UC transfer credit limit maximum of one course from Chemistry 51 or 60. No credit for Chemistry 51 or 60 if taken after Chemistry 101.

**70 Introductory Organic and Biochemistry (4) UC:CSU
(Formerly Chemistry 9)**

Prerequisite: Chemistry 51, 60, or 101 with a grade of "C" or better.

This course is designed for students who are majoring in Dental Hygiene, Home Economics or Nursing. Emphasis is placed on organic chemistry and the processes that occur in living tissues. The relationship between organic and biochemistry is presented at the molecular as well as the cellular level.

NOTE: UC Transfer Credit Limit: A maximum of two courses from Chemistry 70, 211, 212, or 221 will be accepted for UC credit.

**101 General Chemistry I (5) UC:CSU (CAN CHEM 2)
(Formerly Chemistry 1)**

Prerequisites: (1) High school chemistry or Chemistry 60 with a grade of "C" or better; (2) A minimum of two years of high school mathematics or Mathematics 125 or equivalent.

This is a basic course emphasizing principles and theories. It includes discussions of chemical stoichiometry, atomic and molecular structure and the periodic table, gases, liquids, solids, solutions, oxidation reduction, acids and bases, and an introduction to chemical thermodynamics. The laboratory emphasizes basic laboratory skills, chemical principles, and quantitative relationships.

NOTE: No UC credit for Chemistry 51 or 60 if taken after Chemistry 101. One course maximum credit for 51 or 60.

**102 General Chemistry II (5) UC:CSU (CAN CHEM 4)
(Formerly Chemistry 2)**

Prerequisite: Chemistry 101 with a grade of "C" or better.

This course is a continuation of Chemistry 101, with an introduction to chemical kinetics, chemical equilibrium with emphasis on aqueous equilibria, electrochemistry, nuclear chemistry, organic chemistry, and descriptive inorganic chemistry. The laboratory includes both quantitative experiments and qualitative analysis.

NOTE: No UC credit for Chemistry 51 or 60 if taken after Chemistry 101.

**211 Organic Chemistry for Science Majors I (5) UC:CSU
(Formerly Chemistry 14)**

Prerequisite: Chemistry 102 with a grade of "C" or better.

The student is introduced to structure, bonding, naming, stereochemistry and functional group chemistry with emphasis on reactions and reaction mechanisms. In the laboratory, the essential skills of preparation, isolation, purification and identification of organic compounds are presented.

NOTE: UC Transfer Credit Limit: A maximum of two courses from Chemistry 70, 211, 212 or 221 will be accepted for UC credit.

**212 Organic Chemistry for Science Majors II (5) UC:CSU
(Formerly Chemistry 18)**

Prerequisite: Chemistry 211.

Chemistry 212 is a continuation of Chemistry 211 with additional emphasis on the remaining functional groups as well as on multi-step synthesis and reaction mechanisms in stereochemistry and modern instrumental and analytical methods. Special attention is given to reactions and organic compounds of biochemical importance. Significant laboratory time is devoted to synthesis of complex organic compounds.

NOTE: UC Transfer Credit Limit: A maximum of two courses from Chemistry 70, 211, 212, 221 will be accepted for UC credit.

**221 Biochemistry for Science Majors (5) UC:CSU
(Formerly Chemistry 15)**

Prerequisite: Chemistry 211 with a grade of "C" or better.

An introduction to the structure, properties, and metabolism of carbohydrates, fats, proteins, nucleic acids, vitamins and hormones. Relationships between metabolism and energy are presented. In the laboratory, the preparation and reactions of biologically important compounds, both chemical and enzymatic, are investigated.

NOTE: UC Transfer Credit Limit: A maximum of two courses from Chemistry 212, 70, 211, 221 will be accepted for UC credit.

**185 Directed Study - Chemistry (1)
CSU 285 Directed Study - Chemistry
(2) CSU 385 Directed Study -
Chemistry (3) CSU**

Allows a student to pursue Directed Study in Chemistry on a contract basis under the direction of a supervising instructor.

NOTE: Maximum UC credit allowed: 3-1/3 semester units per semester, 6 units total in all or all appropriate subject areas combined. Please note that the granting of transfer credit for courses of this kind is contingent upon a review of the course outline by a UC campus.