

Program Description

Chemistry is the discipline of science that explores the physical and chemical laws that define fundamental elemental interactions and hence the composition, properties and reactivity of all matter.

Traditional teaching may be supplemented with computer and Internet-based instruction. Laboratory activities provide “hands-on” experimentation and discovery into the natural, physical and chemical characteristics of the earth and our universe. Engineering and life science applications may be presented and computer-based data acquisition and analysis may assist in some lab instruction.

Staff

Please dial (661) 722-6300, then the 4 digit extension.

Division:

Christos Valiotis, Dean	x.6415
Suzanne Olson, Administrative Assistant	x.6415
Vacant, Clerical Assistant III	x.6415
Dr. Alexandra Schroer, Department Chair	x.6922
Maria Groth, Lab Technician	x.6703

STEM

Christos Valiotis, STEM Director	x.6415
Jamie Jones, STEM Coordinator	x.6992
Denilson Freitas, STEM Lab Technician	x.6157

Faculty:

Dr. Jeffery Cooper	x.6953
Dr. Jessica Harper	x.6434
Carlos Hernandez	x.6431
Dr. Neil Quebbemann	x.6122
Dr. Alexandra Schroer	x.6922

Adjunct Faculty:

	V.M.
Dr. Yonis Ahmed	2285
Dr. Hind Ali	2509
Dr. Daniel Evans	2441
Brian Kimball	2715
Vinita Kulkarni	2939
Dr. Gurcharan Rahi	2317
Nash Saleh	2131
Neena Suri	2076
Michael Tinnirello	2233

Career Options

Biochemistry	Pharmacy
Chemist	

(Careers may require education beyond the two-year college level.)

Program Learning Outcomes

Associate in Science in Chemistry for Transfer

1. Safely collect, evaluate, and report scientific data from modern laboratory instrumentation and using standard laboratory methods.
2. Evaluate chemical bonding models to explain structures and properties.
3. Predict the outcome of chemical reactions.

Certificate Program

Certificate not applicable.

Associate Degree

Associate in Science in Chemistry for Transfer

The Associate in Science in Chemistry for Transfer (AS-T in Chemistry) degree offers students a fundamental knowledge of chemistry and its relation to science, technology, and engineering. Students will enhance their problem solving and critical thinking skills by employing scientific principles.

The Associate in Science in Chemistry for Transfer (AS-T in Chemistry) degree meets the requirements of SB 1440 for Associate Degrees for Transfer (ADT). These degrees are intended to make it easier for students to transfer to California State University campuses, but do not exclude admittance to other colleges or universities.

(1) Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following:

(A) The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements.

(B) A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.

(2) Obtainment of a minimum grade point average of 2.0.

ADTs also require that students must earn a “C” or better in all courses required for the major or area of emphasis. A “P” (Pass) grade is also an acceptable grade for courses in the major if the course is taken on a Pass/No Pass basis.

***This degree may only be earned by completing the Intersegmental General Education Transfer Curriculum (IGETC) for STEM Requirements.**

Please consult a counselor for additional information.

Required Courses	units
CHEM 110, General Chemistry	5
CHEM 120, General Chemistry	5
CHEM 210, Organic Chemistry	4
CHEM 220, Organic Chemistry	4
MATH 150, Calculus and Analytic Geometry	5
MATH 160, Calculus and Analytic Geometry	4
PHYS 110, General Physics	4
PHYS 120, General Physics	4

Some courses required for the major may also satisfy general education requirements. Consult with a counselor for additional information.

Recommended Pathway	
Fall, First Semester	units
CHEM 110, General Chemistry	5
IGETC GE requirement Area 1A (recommended ENGL 101)	3
IGETC GE requirement Area 3A Arts	3
	Total 11
Spring, Second Semester	
CHEM 120, General Chemistry	5
MATH 150, Calculus and Analytic Geometry (IGETC 2)	5
PHYS 110, General Physics	4
IGETC GE requirement Area 1B Critical Thinking	3
	Total 17
Summer	
IGETC GE requirement Area 3B Humanities	3
IGETC GE requirement Area 1c (CSU only)	3
UC Transferable Elective	1
	Total 7
Fall, Third Semester	
CHEM 210, Organic Chemistry	4
PHYS 120, General Physics	4
MATH 160, Calculus and Analytic Geometry	4
IGETC LOTE 101 <i>if needed*</i>	[5]
	Total 12
Spring, Fourth Semester	
CHEM 220, Organic Chemistry	4
IGETC GE requirement Area 4 (recommended POLS 101)	3
IGETC GE requirement Area 4 (recommended HIST 107 or HIST 108 or HIST 110)	3
IGETC GE requirement Area 5B (recommended BIOL 104 or BIOL 120 or BIOL 204)	3
IGETC LOTE 102 <i>if needed*</i>	[5]
	Total 13
	Degree Total 60

Transfer

Students planning to continue studies at a four-year college or university after AVC should visit the Transfer Resource Center and consult with a counselor as soon as possible. Additional information on official transfer articulation agreements from AVC to many CSU/UC campuses can be found at www.assist.org

Prerequisite Completion

All prerequisite courses must be completed with a satisfactory grade in order to enroll in the next course. According to Title 5, Section 55200(d), a satisfactory grade is a grade of "A," "B," "C" or "P". Classes in which the Pass/No Pass option is available are indicated with an asterisk (*) before the course title. See "Pass/No Pass Option" in the catalog for full explanation.

Chemistry Courses

CHEM 101 INTRODUCTORY CHEMISTRY

5 units

7 hours weekly [3 lecture, 1 SAS, 3 lab]

Prerequisite: Completion of Intermediate Algebra or higher or placement by multiple measures.

This is an introductory study of the nature of matter and its chemical and physical transformation. An emphasis is placed on fundamental laws and principles, elements, compounds and simple chemical reactions. Examines chemical theory in the context of familiar phenomena. Theories are tested and evaluated in the laboratory. This is a general education course for non-science majors. It is an advisory for science majors who have not previously studied chemistry. Science majors who have studied chemistry should consider CHEM 110 instead of this course. (C-ID: CHEM 101) (CSU, UC, AVC)

CHEM 102 *INTRODUCTORY CHEMISTRY (ORGANIC & BIOCHEMISTRY)

4 units

6 hours weekly [3 lecture, 3 lab]

Prerequisite: Completion of CHEM 101.

This course is a basic study of molecular structure, bonding, nomenclature, reactivity and other physical and chemical properties of organic and biological compounds. It places an emphasis on the preparations, reactions, and naming of compounds. The laboratory generally evaluates material that is covered in lecture. The students learn to acquire and interpret experimental data using safe laboratory techniques and equipment. The course is intended for those planning to earn a degree in an allied-health science or a related field. (CSU, UC, AVC)

CHEM 110 GENERAL CHEMISTRY

5 units

7 hours weekly [4 lecture, 3 lab]

Advisory: Completion of CHEM 101.

Prerequisite: Completion of Intermediate Algebra or higher or placement by multiple measures.

This course is designed for students taking courses in the sciences, mathematics, and related STEM areas. It introduces the atom and its largest subatomic particles. Describes and quantifies how these particles are involved in chemical reactions, physical states, chemical energy, and bonding models. Examines chemical theory in the context of familiar phenomena. Theories are tested and evaluated in the laboratory. To succeed in CHEM 110, students are required to successfully complete CHEM 101 or one year of High School Chemistry. Algebra is used extensively to solve problems involving quantities. One hour of lecture time may be reserved for small group activities and analysis. (C-ID: CHEM 110; CHEM 120S= CHEM 110+CHEM 120) (CSU, UC, AVC)

CHEM 120 GENERAL CHEMISTRY

5 units

9 hours weekly [3 lecture, 6 lab]

Prerequisite: Completion of CHEM 110.

Investigates and quantifies, where possible, the kinetics, entropy, and enthalpy that underlie chemical reactivity. Relates these concepts to chemical equilibrium. Explores application of equilibrium to colligative properties of solutions, acid-base chemistry, precipitation from aqueous solutions, electrochemistry and coordination compounds. Includes a cursory introduction to the fields of nuclear, organic, polymer and biochemistry. Examines chemical theory in the context of familiar phenomena. Theories are tested and evaluated in the laboratory. One hour of lecture time is reserved for small group activities and analysis. This course is designed for science, mathematics and related majors. (C-ID: CHEM 120S= CHEM 110+CHEM 120) (CSU, UC, AVC)

CHEM 210 ORGANIC CHEMISTRY

4 units

8 hours weekly [2 lecture, 6 lab]

Prerequisite: Completion of CHEM 120.

This course is a study of molecular structure, bonding, nomenclature, stereochemistry, spectral and other physical properties of organic compounds. A major topic will be the preparations, reactions and reaction mechanisms of organic compounds. The laboratory generally evaluates material that is being studied in lecture. Students learn to use and interpret the data from various equipment available in the laboratory. The course is intended for those planning to pursue a four-year degree in science or a related field. (C-ID: CHEM 150) (CSU, UC, AVC)

CHEM 220 ORGANIC CHEMISTRY

4 units

8 hours weekly [2 lecture, 6 lab]

Prerequisite: Completion of CHEM 210.

This course is a continuation of the study of molecular structure, bonding, nomenclature, stereochemistry, spectral and other physical properties of organic compounds. A major topic will be the preparations, reactions, and reaction mechanisms of organic compounds. A short introduction will be given covering biochemical topics. The laboratory generally follows material that is being studied in lecture. The course is intended for those planning to pursue a four-year degree in science or a related field. (CSU, UC, AVC)