CHEMISTRY

The Department of Chemistry at Ventura College offers a variety of lower-division courses covering general, organic, and biochemistry topics meant to prepare students for degrees in science, veterinary medicine, and healthcare as well as satisfying most general education science requirements through on site as well as partially online (online/onsite) offerings in both lecture and laboratory settings. A background in chemistry is essential for many fields. Opportunities await the chemist in such fields as medicine and pharmaceuticals, metals and polymers, petroleum, electrochemistry, nanotechnology, forensics, aerospace, paper, food technology, business, and education.

Note: *All students taking a laboratory course must attend the entire mandatory safety lecture given at the start of the first class meeting or may be dropped from the class unless prior arrangements are made with the instructor.*

CHEM V01A General Chemistry I 3 Units
In-Class Hours: 52.5 lecture
Prerequisites: CHEM V20 with a grade of "C" or better and CHEM V20L with a grade of "C" or better or passing score on an AP/IB/CLEP exam in chemistry , and completion of Intermediate Algebra (MATH V03), or a higher-level mathematics course, with a grade of C or better; or placement as measured by the college's multiple measures assessment process
C-ID: CHEM 110 [CHEM V01A + CHEM V01AL], CHEM 120S [CHEM V01A + CHEM V01AL + CHEM V01B + CHEM V01BL]
This course is an introduction to matter and energy, atomic structure, nomenclature, chemical equations, stoichiometry, gases, thermochemistry, quantum chemistry, bonding, molecular geometry, oxidation-reduction, liquids and solids, and solutions.
Grade Modes: Letter Graded
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V01AL General Chemistry I Laboratory 2 Units
In-Class Hours: 105 laboratory
Prerequisites: CHEM V01A with grade of C or better or concurrent enrollment
C-ID: CHEM 110 [CHEM V01A + CHEM V01AL], CHEM 120S [CHEM V01A + CHEM V01AL + CHEM V01B + CHEM V01BL]
The laboratory provides the student with experience in applying the principles developed in General Chemistry I lecture. Quantitative experiments that illustrate the fundamental laws of chemistry are emphasized.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V01B General Chemistry II 3 Units
In-Class Hours: 52.5 lecture
Prerequisites: CHEM V01A with a grade of C or better
C-ID: CHEM 120S [CHEM V01A + CHEM V01AL + CHEM V01B + CHEM V01BL]
This course presents a detailed study of chemical equilibrium, kinetics, electrochemistry, chemical thermodynamics, and a brief introduction to organic chemistry and nuclear reactions.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V01BL General Chemistry II Laboratory 2 Units
In-Class Hours: 105 laboratory
Prerequisites: CHEM V01AL with grade of C or better; and CHEM V01B with grade of C or better or concurrent enrollment
C-ID: CHEM 120S [CHEM V01A + CHEM V01AL + CHEM V01B + CHEM V01BL]
The laboratory provides the student with experience in applying principles developed in the General Chemistry II lecture, including experiments in kinetics, equilibrium, electrochemistry, thermochemistry, qualitative analysis, and organic chemistry.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V12A General Organic Chemistry I 3 Units
In-Class Hours: 52.5 lecture
Prerequisites: CHEM V01B-V01BL with grades of C or better
C-ID: CHEM 150 [CHEM V12A + CHEM V12AL], CHEM 160S [CHEM V12A + CHEM V12AL + CHEM V12B + CHEM V12BL]
This course stresses molecular structure, chemical and physical properties, and the preparation of organic compounds with an emphasis on reaction mechanisms, structure determination, synthesis, and applications.
Grade Modes: Letter Graded
Credit Limitations: see counselor.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V12AL General Organic Chemistry I Laboratory 2 Units
In-Class Hours: 105.0 laboratory
Prerequisites: CHEM V12A with grade of C or better or concurrent enrollment
C-ID: CHEM 150 [CHEM V12A + CHEM V12AL], CHEM 160S [CHEM V12A + CHEM V12AL + CHEM V12B + CHEM V12BL]
This course covers the utilization of the techniques of experimental organic chemistry, including physical and chemical methods of purification, separation, and structure determination, with an emphasis on synthesis and mechanisms. Infrared spectroscopy and Gas Chromatography are used extensively in this course.
Grade Modes: Letter Graded
Field Trips: May be required
Credit Limitations: see counselor.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V12B General Organic Chemistry II 3 Units
In-Class Hours: 52.5 lecture
Prerequisites: CHEM V12A with grade of C or better
C-ID: CHEM 160S [CHEM V12A + CHEM V12AL + CHEM V12B + CHEM V12BL]
This course continues the study of functional groups such as carboxylic acids and their derivatives, carbonyls, amines, and phenols. The emphasis is again on reaction mechanisms, structure determination using nuclear magnetic resonance and infrared spectroscopy, synthesis, and applications. A major part of this course is devoted to the study of biochemistry.
Grade Modes: Letter Graded
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V12BL General Organic Chemistry II Laboratory 2 Units
In-Class Hours: 105 laboratory
Prerequisites: CHEM V12AL with grade of C or better; and CHEM V12B with a grade of C or better or concurrent enrollment
C-ID: 160S [CHEM V12A + CHEM V12AL + CHEM V12B + CHEM V12BL]
This course covers the utilization of the techniques of experimental organic chemistry, including chemical and physical separations, purification, chemical syntheses, extraction methods, and structure determinations, with an emphasis on functional group analysis, reactivity, and mechanisms. Extensive use of infrared spectroscopy, and analysis of gas chromatography, nuclear magnetic resonance, and mass spectra will be included.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V20 Elementary Chemistry 4 Units
In-Class Hours: 70 lecture
Prerequisites: MATH V01 or MATH V11B with grade of C or better
Advisories/Rec Prep: MATH V03
C-ID: CHEM 101
This course includes fundamental theories, laws, and techniques of general chemistry, together with their more important applications, drill in chemical formulas, equations and calculations.
Grade Modes: Letter Graded
Credit Limitations: see counselor.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V20L Elementary Chemistry Laboratory 1 Unit
In-Class Hours: 52.5 laboratory
Prerequisites: CHEM V20 or concurrent enrollment
C-ID: CHEM 101 [CHEM V20 + CHEM V20L]
This course is an introduction to laboratory techniques. The experiments illustrate typical chemical reactions and the principles covered in the lecture.
Grade Modes: Letter Graded
Credit Limitations: see counselor.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V21 Introduction to Organic and Biochemistry 3 Units
Formerly: CHEM 21
In-Class Hours: 52.5 lecture
Prerequisites: CHEM V01A and CHEM V01AL or CHEM V20 and CHEM V20L
C-ID: CHEM 102 [CHEM V21 + CHEM V21L]
This course is an introduction to organic and biological chemistry. It covers the preparation, chemical properties, physical properties, and applications of both organic and biological compounds.
Grade Modes: Letter Graded
Field Trips: May be required
Credit Limitations: see counselor.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V21L Introduction to Organic and Biochemistry Laboratory 2 Units
Formerly: CHEM 21L
In-Class Hours: 105 laboratory
Prerequisites: CHEM V21 with grade of C or better or concurrent enrollment
C-ID: CHEM 102 [CHEM V21 + CHEM V21L]
This course is an introduction to organic and biological chemistry laboratory. The reactions and properties of both organic and biological compounds will be studied.
Grade Modes: Letter Graded
Credit Limitations: see counselor.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V30 Chemistry for Health Sciences 4 Units
In-Class Hours: 70 lecture
Prerequisites: MATH V01 with a grade of C or better, or MATH V11B with a grade of C or better, or completion of an Elementary Algebra level course, or placement as measured by the college's multiple measures assessment process
This course is for biological and health science majors. General, organic and biological chemistry are studied with an emphasis placed on medical applications. Topics in general chemistry will include the modern view of the atom, molecules, chemical compounds, and reactions. Topics in organic chemistry will include hydrocarbons, alcohols, aldehydes, and ketones. Topics in biochemistry will include carbohydrates, proteins, lipids, nucleic acids, and metabolism.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B1
IGETC: 5A

CHEM V30L Chemistry for Health Sciences Laboratory 1 Unit
In-Class Hours: 52.5 laboratory
Prerequisites: CHEM V30 or concurrent enrollment
This course consists of laboratory investigations of general, organic, and biological chemistry with an emphasis on medical applications. Experiments in general chemistry will include measuring densities, the separation of mixtures, and chemical reactions. Experiments in organic chemistry will include examining the properties of hydrocarbons, alcohols, aldehydes, and ketones. Experiments in biochemistry will include examining carbohydrates, proteins, and fats.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A2
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B3
IGETC: 5C

CHEM V90 Directed Studies in Chemistry 1-6 Units
In-Class Hours: 17.5-105 lecture
Prerequisites: varies with topic
This course offers specialized study opportunities for students who wish to pursue projects not included in the regular curriculum. Students are accepted only by a written project proposal approved by the discipline prior to enrollment.
Grade Modes: Letter Graded
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: None
Transfer Credit: CSU
UC Credit Limitations: None
CSU GE-Breadth: None
IGETC: None