

## Chemistry (CHEM)

Contact the Chemistry Department for further information.  
(760) 744-1150, ext. 2505  
Office: NS-355B

### Associate in Science Degrees -

AS Degree requirements are listed in Section 6 (green pages).

- Chemistry

### Certificates of Achievement -

Certificate of Achievement requirements are listed in Section 6 (green pages).

- Chemistry

## PROGRAM OF STUDY

### Chemistry

Provides the background to begin upper division course work and prepares the student for entry level jobs that require a knowledge of chemistry. The student is advised to check with the institution to which he/she wishes to transfer for additional courses, which may be required.

### A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
CHEM 110 General Chemistry	3
CHEM 110L General Chemistry Laboratory	2
CHEM 115 General Chemistry	3
CHEM 115L General Chemistry Laboratory	2
CHEM 210 Analytical Chemistry	5
CHEM 220 Organic Chemistry	5
CHEM 221 Organic Chemistry	5
<b>TOTAL UNITS</b>	<b>25</b>

## COURSE OFFERINGS

Courses numbered under 50 are non-degree courses.

Courses numbered under 100 are not intended for transfer credit.

### CHEM 10 Chemistry Calculations (1)

1 hour lecture

**Note:** Pass/No Pass grading only

Non-degree Applicable

The basic calculation skills needed for successful performance in CHEM 100, 110, and 115. Areas such as significant figures, exponential numbers, and basic chemical problems are discussed. Emphasizes student practice of chemistry problems.

### CHEM 100 Fundamentals of Chemistry (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** One year of high school algebra

**Transfer acceptability:** CSU; UC – no credit if taken after CHEM 110

Introductory study of the principles and laboratory techniques of general chemistry. Laboratory must be taken concurrently with lecture.

### CHEM 104 General Organic and Biochemistry (5)

4 hours lecture - 3 hours laboratory

**Transfer acceptability:** CSU; UC

This course will cover the basic principles of general chemistry, organic chemistry and biochemistry as needed to understand the biochemistry, physiology, and pharmacology of the human body. This course is intended mainly for students pursuing health professions.

### CHEM 105 Fundamentals of Organic Chemistry (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CHEM 100, or CHEM 110 and 110L

**Transfer acceptability:** CSU; UC

An introduction to the study of organic chemistry with an emphasis on classification, reactions, and application to allied fields. Laboratory includes techniques of isolation, identification, and synthesis of organic compounds.

### CHEM 110 General Chemistry (3)

3 hours lecture

**Prerequisite:** A minimum grade of 'C' in CHEM 100 or high school chemistry with laboratory, and two years of high school algebra or MATH 60

**Corequisite:** CHEM 110L

**Transfer acceptability:** CSU; UC

C-ID CHEM 110 for CHEM 110 and 110L combined; CHEM 120S for CHEM 110, 110L, 115 and 115L combined

Principles of, and calculations in, areas such as atomic structure, solutions, chemical bonding, chemical formulas and equations, gases, energy transformations accompanying chemical changes, and descriptive chemistry.

### CHEM 110L General Chemistry Laboratory (2)

6 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CHEM 110, or concurrent enrollment in CHEM 110

**Transfer acceptability:** CSU; UC

C-ID CHEM 110 for CHEM 110 and 110L combined; CHEM 120S for CHEM 110, 110L, 115 and 115L combined

Qualitative and quantitative investigations designed to accompany CHEM 110.

### CHEM 115 General Chemistry (3)

3 hours lecture

**Prerequisite:** A minimum grade of 'C' in CHEM 110 and 110L

**Recommended preparation:** Concurrent enrollment in CHEM 115L

**Transfer acceptability:** CSU; UC

C-ID CHEM 120S for CHEM 110, 110L, 115 and 115L combined

A continuation of the general principles of chemistry with emphasis on chemical kinetics, chemical equilibria acids and bases, thermodynamics and electrochemistry. It includes an overview of coordination chemistry and organic chemistry.

### CHEM 115L General Chemistry Laboratory (2)

6 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CHEM 110 and 110L; A minimum grade of 'C' in CHEM 115, or current enrollment in CHEM 115

**Transfer acceptability:** CSU; UC

C-ID CHEM 120S for CHEM 110, 110L, 115 and 115L combined

Qualitative and quantitative investigations designed to accompany CHEM 115.

### CHEM 197 Chemistry Topics (.5 - 4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.

**Transfer acceptability:** CSU; UC – Credit determined by UC upon review of course syllabus.

Topics in Chemistry. See Class Schedule for specific topic offered. Course title will designate subject covered.

### CHEM 205 Introductory Biochemistry (3)

3 hours lecture

**Prerequisite:** A minimum grade of 'C' in CHEM 105

**Transfer acceptability:** CSU; UC

Fundamental principles of the chemistry of living systems, including structure and function of proteins, nucleic acids, carbohydrates, and lipids. Emphasis on metabolism, energy storage and utilization.

### CHEM 210 Analytical Chemistry (5)

3 hours lecture - 6 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CHEM 115 and 115L

**Transfer acceptability:** CSU; UC

Principles, calculations, and applications of volumetric, gravimetric, and instrumental analysis. Practice in standardizing reagents and determining the composition of samples of various materials.

**CHEM 220 Organic Chemistry (5)**

3 hours lecture - 6 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CHEM 115 and CHEM 115L**Transfer acceptability:** CSU; UC

Integrated treatment of organic chemistry including electronic and orbital theory with applications to carbon bonding, stereo chemistry, resonance theory, and reaction mechanisms of both aliphatic and aromatic compounds. Strong emphasis on organic nomenclature, reactions, preparations, and synthesis of organic compounds. Laboratory: Techniques and theories involved in organic reactions and preparations, qualitative organic analysis, and instrumental methods.

**CHEM 221 Organic Chemistry (5)**

3 hours lecture - 6 hours laboratory

**Prerequisite:** A minimum grade of 'C' in CHEM 220**Transfer acceptability:** CSU; UC

Continuation of the integrated treatment of organic chemistry including electronic and orbital theory with applications to carbon bonding, stereo chemistry, resonance theory, and reaction mechanisms of both aliphatic and aromatic compounds. Strong emphasis on organic nomenclature, reactions, preparations, and synthesis of organic compounds. Laboratory: techniques and theories involved in organic reactions and preparations, qualitative organic analysis, and instrumental methods.

**CHEM 295 Directed Study in Chemistry (1, 2, 3)**

3, 6, or 9 hours laboratory

**Prerequisite:** Approval of project or research by department chairperson**Transfer acceptability:** CSU; UC – Credit determined by UC upon review of course syllabus.

Independent study for students who have demonstrated skills and/or proficiencies in chemistry subjects and have the initiative to work independently on projects or research outside the context of regularly scheduled classes. Students will work under the personal supervision of an instructor.

**Chicano Studies (CS)**

See also Multicultural Studies

Contact the Multicultural Studies Department for further information.

(760) 744-1150, ext. 2206

Office: MD-354

**COURSE OFFERINGS****CS 100 Introduction to Chicano Studies (3)**

3 hours lecture

**Transfer acceptability:** CSU; UC

The development of contemporary Chicano culture including various pre-Columbian and Hispanic cultures in Mexico and the Southwest. A cross-disciplinary approach examines applicable methods and theories from sciences and humanities.

**CS 101 United States History from a Chicano Perspective I (3)**

3 hours lecture

**Note:** This course plus CS 102 meets the State requirement in American History and Institutions.**Transfer acceptability:** CSU; UC

A survey of early American history from the Mexican/Chicano perspective. Focus is on the period of discovery to Reconstruction with emphasis on the evolution, influence and experience of the Chicano. Chicano contributions are analyzed for political, social, economic and cultural development of the United States. Intended for students interested in history, ethnic studies or other social sciences.

**CS 102 United States History from a Chicano Perspective II (3)**

3 hours lecture

**Note:** This course plus CS 101 meets the State requirement in American History and Institutions.**Transfer acceptability:** CSU; UC – CS 102, AS 110 and AIS 102 combined; maximum credit, one course

A survey course in American history that covers the period from the American acquisition in 1848 of Mexican territory to the present. Emphasis is placed on the role of the Chicano in the development of the United States throughout the nineteenth and twentieth century. Topics include slavery in the former Mexican territories, the native American experience, immigration patterns and constitutional development and government in California. Intended for students interested in history, ethnic studies, or other social issues.

**CS 105 Chicano Literature (3)**

3 hours lecture

**Transfer acceptability:** CSU; UC

A survey of Chicano literature from its pre-Columbian origins. Analyzes the identity conflicts resulting from the dual cultures of Mexican and American worlds through literary works. Introduces the student to the rich and culturally diverse Chicano and Chicana authors that reflect the literary traditions that have mirrored the Chicano-Mexican reality in the United States.

**CS 110 Contemporary Mexican Literature (3)**

3 hours lecture

**Transfer acceptability:** CSU; UC

A survey of Mexican novels, prose and poetry from the Mexican Revolution to the present. Major landmark novels of Mexico will be examined in their social and historical context. Designed to acquaint non-Spanish major students with Mexican thought, values, and literary heritage relative to world literature.

**CS 125 The History of Mexico (3)**

3 hours lecture

**Transfer acceptability:** CSU; UC

A survey of the political, economic, and cultural development of the Mexican people and nation from the pre-Columbian period through the Revolution of 1910.

**CS 140 Chicana Thought and Cultural Expression (3)**

3 hours lecture

**Transfer acceptability:** CSU; UC

This course is the study of the Chicana in America society in historical and sociological perspective. Emphasis is placed on Chicana feminist scholarship and cultural representations, border issues, resistance to patriarchy, and the search for power. This course is designed for all students interested in Chicana and Chicano studies.

**CS 155 Ancient Civilizations of Meso America (3)**

3 hours lecture

**Note:** Cross listed as ANTH 155**Transfer acceptability:** CSU; UC

Civilizations of Pre-Columbian Mexico and Central America with a focus on their origins and achievements.

**CS 161A Elementary Classical Nahuatl IA (3)**

3 hours lecture

**Note:** Cross listed as AIS 161A**Transfer acceptability:** CSU; UC

This is an introductory course on the Classical Nahuatl language of the Aztec Empire. Students will acquire a basic knowledge of Nahuatl morphology and syntax.

**CS 161B Elementary Classical Nahuatl IB (3)**

3 hours lecture

**Note:** Cross listed as AIS 161B**Transfer acceptability:** CSU

A continuation of AIS/CS 161A that reviews the phonology, morphology, syntax and grammar of the Nahuatl Language, with continued emphasis on culturally relevant terminology leading to increased proficiency in expressing basic concepts both orally and in writing.