

CHEMISTRY, ASSOCIATE IN ARTS

The Associate in Arts in Chemistry is designed for students who plan to transfer to earn a Bachelor of Arts or Bachelor of Science degree in Chemistry at a California State University or other independent or out-of-state university. The AA in Chemistry introduces the concepts and principles upon which chemical knowledge is based, including chemical structures and nomenclature, stoichiometry and solving of chemical equations, the thermodynamics of chemical reactions, and theories of chemical bonding. Students will develop skills for critical/analytical thinking, perceptive reading/observation and interpretation. Students should work with a counselor and consult articulation agreements on ASSIST to ensure they are meeting admission and major requirements of their specific intended transfer institution.

| Course ID | Title | Units/ Hours |
|--|--|-----------------|
| Required Core Courses | | 20 |
| CHEM R120 | General Chemistry I | |
| CHEM R122 | General Chemistry II | |
| MATH R120 | Calculus with Analytic Geometry I | |
| MATH R121 | Calculus with Analytic Geometry II | |
| Required Additional Courses | | |
| Complete a minimum of 3 units from the courses below as required for the intended transfer institution | | 3-26 |
| CHEM R130 | Organic Chemistry I | |
| CHEM R132 | Organic Chemistry II | |
| MATH R122 | Calculus with Analytic Geometry III | |
| MATH R134 | Linear Algebra | |
| MATH R143 | Differential Equations | |
| BIOL R101 | General Biology | |
| or BIOL R101H | Honors: General Biology | |
| BIOL R120 | Principles of Biology I | |
| Complete a minimum of 10 units in Physics from the same series, as required by the intended transfer institution | | 10-15 |
| Sequence 1: | | |
| PHYS R101 | College Physics 1 | |
| PHYS R101L | College Physics 1 Laboratory | |
| PHYS R102 | College Physics 2 | |
| PHYS R102L | College Physics 2 Laboratory | |
| Sequence 2: | | |
| PHYS R121 | Physics with Calculus 1 | |
| PHYS R122 | Physics with Calculus 2 | |
| Series 3: | | |
| PHYS R131 | Physics for Scientists and Engineers 1 | |
| PHYS R132 | Physics for Scientists and Engineers 2 | |
| PHYS R133 | Physics for Scientists and Engineers 3 | |
| Total Required Major Units | | 33-61 |
| CSU GE-Breadth | | 39 |
| Health | | 3 |
| Kinesiology Activity | | 1 |
| Double-Counted Units | | - 7-10 |
| Free Electives | | 0 |

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|---|--------------|
| Total Units Required for A.A. Degree | 66-94 |
| OR | |
| Total Required Major Units | 33-61 |
| IGETC | 37 |
| Health | 3 |
| Kinesiology | 1 |
| Double-Counted Units | - 7-10 |
| Free Electives Required | 0 |
| Total Units for A.A. Degree | 64-92 |

To complete the Associate Degree, students must meet requirements in the major, general education, competency, units, scholarship, and residency. Refer to Graduation Requirements - Earn an Associate Degree and the A.A. or A.S. Degree in Specific Majors sections of this catalog.

Proposed plan of study for A.A. degree in Chemistry:

| Year 1 | | Units/Hours |
|--------------------------|------------------------------------|-------------|
| Fall Semester | | |
| CHEM R120 | General Chemistry I | 5 |
| MATH R120 | Calculus with Analytic Geometry I | 5 |
| Units/Hours | | 10 |
| Spring Semester | | |
| CHEM R122 | General Chemistry II | 5 |
| MATH R121 | Calculus with Analytic Geometry II | 5 |
| Units/Hours | | 10 |
| Year 2 | | |
| Fall Semester | | |
| PHYS R101 | College Physics 1 | 4 |
| PHYS R101L | College Physics 1 Laboratory | 1 |
| or | | |
| PHYS R121 | Physics with Calculus 1 | 5 |
| Units/Hours | | 10 |
| Spring Semester | | |
| PHYS R102 | College Physics 2 | 4 |
| PHYS R102L | College Physics 2 Laboratory | 1 |
| or | | |
| PHYS R122 | Physics with Calculus 2 | 5 |
| Units/Hours | | 10 |
| Total Units/Hours | | 40 |

Please note: This plan of study contains only the required core courses and not restricted electives or general education.

If students plan to transfer to **CSUCI** to major in chemistry, it is advised that they complete CHEM R130 and CHEM R132 prior to transfer. These are required courses for the B.A. or the B.S. in Chemistry at CSUCI as well as most B.A. or B.S. degree programs in chemistry or biochemistry at other four-year universities.

For a B.S. in Chemistry with an option in Biochemistry at **CSUCI**, students should also complete BIOL R120 Principles of Biology I (Units: 4) prior to transfer.

Upon successful completion of this program, students will be able to:

- Conduct experiments, analyze data, and interpret results, while observing responsible and ethical scientific conduct.
- Demonstrate an understanding of major concepts, theoretical principles and experimental findings in chemistry.

- Be prepared to transfer to a university or enter allied health programs such as dental hygiene.
- Demonstrate a foundational knowledge of general principles of chemistry and be able to apply this knowledge to the solution of problems and performance of experiments.
- Demonstrate proficiency in the use of appropriate instrumentation to collect and record data from chemical experiments.
- Use critical thinking and efficient problem-solving skills in the four basic areas of chemistry: analytical, inorganic, organic, and physical.
- Use modern instrumentation for chemical analysis.