

# UNIVERSITY STUDIES: SCIENCE AND MATHEMATICS



The Associate Degree in University Studies with an Area of Emphasis is intended to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each four-year transfer institution, courses used to complete this degree should be selected with the assistance of a counselor. The completion of the University Studies Degree does not guarantee acceptance into either a baccalaureate major or a four-year institution.

## Requirements

### I. California State University (CSU) General Education Breadth

1. Complete CSU General Education Breadth (see Degree Requirements and Transfer Information section).
2. Earn a grade of "C" or better in 30 of the required 39 semester units of general education to include all courses in Area A and the Mathematical/Quantitative Reasoning courses in Area B.
3. Credit earned through external examinations, i.e., AP, will be applied towards general education in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on a CSU certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable CSU transferable semester units.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

or

### II. Intersegmental General Education Transfer Curriculum (IGETC) for CSU or UC

1. Complete IGETC Certification (see Degree Requirements and Transfer Information section).
2. Earn a grade of "C" or better in all IGETC courses.
3. Credit earned through external examinations, i.e., AP, will be applied in accordance with Cuyamaca College policies. Please note: This may be different than how the external exam is used on an IGETC certification.
4. Complete a minimum of 18 units in an Area of Emphasis (listed below).
5. Complete a minimum of 60 degree applicable UC transferable semester units for UC University Studies.
6. Earn a cumulative GPA of 2.0 in all college course work completed.
7. Meet Cuyamaca College residence requirements for graduation (see Admission Information).

and

Choose a minimum of 18 units. Students must complete a minimum of three units in Science and three units in Mathematics (limitation of one statistics course). The remaining twelve units may be taken from either category.

While 18 units are required in a specific area to meet the requirements of the degree, it is strongly recommended that as many lower division preparation for the major courses as possible be completed at the community college prior to transfer. Some baccalaureate majors and four-year institutions require a higher GPA than is necessary for the associate degree. Courses that are not UC-transferable will not be used in the UC University Studies Area of Emphasis Degrees. Completion of the University Studies degree does not guarantee admission to a four-year institution.

Courses for the Associate in Science in University Studies with an Emphasis in Science and Mathematics focus on the study of mathematical and quantitative reasoning skills and the application of facts and principles that form the foundations of living and non-living systems. Students will recognize and utilize the methodologies of science as investigative tools, as well as the limitations of science. Students will use mathematical skills to solve numerical problems encountered in daily life, as well as more advanced skills for applications in the physical and life sciences. Students completing this area may be interested in the following baccalaureate majors: astronomy, biological sciences, chemistry, computer science, engineering, geography, geology, mathematics, oceanography, physical science, and physics.

## Program Learning Outcomes

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

- Utilize high level mathematical skills to analyze data and/or solve problems.
- Use the scientific method of inquiry and techniques to answer questions about physical and biological processes.
- Analyze concepts of physical and biological science to evaluate scientific information and solve scientific problems.

## Science

Code	Title	Units
ANTH-130	Introduction to Biological Anthropology	3
ASTR-110	Descriptive Astronomy	3
ASTR-112	General Astronomy Laboratory	1
BIO-115	Biology of Alcohol and Other Drugs	3
BIO-122	The Secret Life of Plants	4
BIO-130	General Biology I	3
BIO-131	General Biology I Laboratory	1
BIO-133	Ethnoecology	3
BIO-134	Ethnobotany	3
BIO-135	Ethnobotany/Ethnoecology Lab <sup>1</sup>	1
BIO-140	Human Anatomy	4
BIO-141	Human Physiology	3
BIO-141L	Laboratory in Human Physiology	1
BIO-152	Paramedical Microbiology <sup>1</sup>	5
BIO-230	Principles of Cellular, Molecular and Evolutionary Biology	4
BIO-240	Principles of Ecology, Evolution and Organismal Biology	5

BIO-251	Human Dissection	1	MATH-285	Differential Equations	3
CHEM-102	Introduction to General, Organic and Biological Chemistry	5	PSY-215	Statistics for the Behavioral Sciences	4
CHEM-115	Fundamentals of Chemistry	4	<sup>1</sup> Course not UC transferable.		
CHEM-120	Preparation for General Chemistry	4			
CHEM-141	General Chemistry I	5			
CHEM-142	General Chemistry II	5			
CHEM-231	Organic Chemistry I	5			
CHEM-232	Organic Chemistry II	5			
CS-119	Program Design and Development	3			
CS-119L	Program Design and Development Lab	1			
CS-181	Introduction to C++ Programming	4			
CS-182	Introduction to Java Programming	4			
CS-281	Intermediate C++ Programming and Fundamental Data Structures	4			
CS-282	Intermediate Java Programming and Fundamental Data Structures	4			
GEOG-120	Physical Geography: Earth Systems	3			
GEOG-121	Physical Geography: Earth Systems Laboratory	1			
GEOL-104	Earth Science	3			
GEOL-105	Physical Geology: Earth Systems Laboratory	1			
GEOL-110	Planet Earth	3			
GEOL-111	Planet Earth Laboratory	1			
KUMEY-133	Ethnoecology	3			
KUMEY-134	Ethnobotany	3			
KUMEY-135	Ethnobotany/Ethnoecology Lab	1			
OCEA-112	Introduction to Oceanography	3			
OCEA-113	Oceanography Laboratory	1			
PHYC-110	Introductory Physics	4			
PHYC-130	Fundamentals of Physics	4			
PHYC-131	Fundamentals of Physics	4			
PHYC-201	Mechanics and Waves	5			
PHYC-202	Electricity, Magnetism, and Heat	5			
PHYC-203	Light, Optics, and Modern Physics	5			

<sup>1</sup> Course not UC transferable.

## Mathematics

Code	Title	Units
BIO-215	Statistics for Life Sciences	3
MATH-160	Elementary Statistics	4
MATH-170	Analytic Trigonometry <sup>1</sup>	3
MATH-175	College Algebra	4
MATH-176	PreCalculus: Functions and Graphs	6
MATH-178	Calculus for Business, Social and Behavioral Sciences	4
MATH-180	Analytic Geometry and Calculus I	5
MATH-245	Discrete Mathematics	3
MATH-280	Analytic Geometry and Calculus II	4
MATH-281	Multivariable Calculus	4
MATH-284	Linear Algebra	3