

ENVIRONMENTAL SCIENCE

Natural and Applied Sciences Division

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Associate Degree
for Transfer
A Degree with a Guarantee.™

Environmental Science A.S.-T Transfer Degree

Environmental Science is an interdisciplinary study that examines the role of humans on the Earth and provides students with an understanding of the application of biological, chemical, and physical sciences to problems in the environment. Environmental Science also examines how human behavior and institutions affect the global environment. Topics typically include population biology, ecosystems, biodiversity, biochemistry, the chemistry of air and water pollution as well as geological processes and hazards and natural resources.

Students gain knowledge of fundamental concepts in the life sciences, physical sciences, and interdisciplinary natural sciences that inform society about the environment in which we live. The Associate in Science in Environmental Science for Transfer (A.S.-T in Environmental Science) prepares students for transfer to a 4-year university or technical program for further study to prepare for a wide variety of careers. Environmental scientists typically use their knowledge and skills to protect the environment and human health. They may clean up polluted areas, advise policymakers, or work with government and industry to reduce waste and improve conditions. Other career possibilities are academia, environmental law, environmental consulting, and resource management.

The Associate in Science in Environmental Science for Transfer (A.S.-T in Environmental Science) which is intended for students who plan to transfer and complete a bachelors degree in a similar major at a CSU campus. Students completing these degrees are guaranteed admission to the CSU system, but not to a particular campus or major. This degree may not be the best option for students intending to transfer to a particular CSU campus or to a university or college that is not part of the CSU System.

See Associate Degree for Transfer information in the Cabrillo College *Catalog*. The following is required for all A.A.-T or A.S.-T degrees:

- Completion of 60 CSU-transferable semester units.
- Minimum grade-point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum of 2.0 is required for admission, some majors may require a higher GPA.
- Completion of a minimum of 18* semester units in the major with a letter grade of "C" or better, or a "P" if the course is taken on a "Pass/No Pass" basis. *Note: This degree requires greater than 18 units in the major for completion.

- Certified completion of the California State University General Education-Breadth pattern (CSU GE Breadth) or the Intersegmental General Education Transfer Curriculum (IGETC) pattern.

Learning Outcomes

The Cabrillo College Core Competencies (with an emphasis in the study of Environmental Science):

1. Communication: Reading, Writing, Listening, Speaking, and/or Conversing
2. Critical Thinking and Information Competency: Analysis, Computation, Research, Problem Solving
3. Global Awareness: An appreciation of Scientific Processes, Global Systems and Civics, and Artistic Variety
4. Personal Responsibility and Professional Development: Self-Management and Self-Awareness, Social and Physical Wellness, Workplace Skills

CSU or IGETC for CSU General Education Requirements 31-33 Units Core Courses

BIO 9A	Molecular, Cellular and Animal Biology.....	5
BIO 9B	Ecology, Evolution and Plant Biology.....	5
CHEM 1A	General Chemistry I.....	5

List A - Take 7 units from below

ES 10	Introduction to Environmental Science.....	3
and		
GEOL 10	Physical Geology.....	4
or		
GEOG 1	Physical Geography.....	3
and		
GEOG 1L	Physical Geography Laboratory.....	1

and take a Statistics course plus Calculus:

MATH 12	Elementary Statistics.....	5
or		
MATH 12H	Honors Elementary Statistics.....	5
or		
PSYCH 2A	Statistics for Behavioral Sciences.....	3
and		
MATH 5A	Analytical Geometry and Calculus I.....	5

List B - Take the two PHYS courses. ECON is optional.

PHYS 4A	Physics for Scientists and Engineers I.....	5
and		
PHYS 4B	Physics for Scientists and Engineers II.....	5
ECON 1B	Introduction to Microeconomics.....	3

Total Units

60

Note: all courses in the major also meet general education requirements.

Environmental Science Courses

ES 10 Introduction to Environmental Science

3 units; 3 hours Lecture

Repeatability: May be taken a total of 1 time.

Covers the physical, biological, chemical, and human systems that constitute the Earth's environment. Topics include geological processes, hydrology, natural resources, climatology, population biology, ecosystems, biodiversity, biochemistry, and the chemistry of pollution. Includes an analysis of how human behavior and institutions effect the environment.

Transfer Credit: Transfers to CSU; UC.

ES 10L Introduction to Environmental Science Lab

1 unit; 3 hours Laboratory

Repeatability: May be taken a total of 1 time.

Presents hands-on exploration for topics associated with Environmental Science including watershed monitoring and field trips to local agencies.

Transfer Credit: Transfers to CSU; UC.

ES 15 Energy for a Sustainable Future

3 units; 3 hours Lecture

Recommended Preparation: Eligibility for MATH 154.

Repeatability: May be taken a total of 1 time.

Explores the personal, community, national, and global creation and use of energy in the past, present, and future including environmental effects, resource depletion, and climate change. Examines renewable energy technologies and paths to a sustainable energy future.

Transfer Credit: Transfers to CSU; UC.

ES 15L Energy for a Sustainable Future Lab

1 unit; 3 hours Laboratory

Co-requisite: Completion of or concurrent enrollment in ES 15.

Recommended Preparation: MATH 154 or equivalent skills.

Repeatability: May be taken a total of 1 time.

Presents hands-on exploration for topics associated with ES 15 such as physics of energy and power: measurement and generation, renewable energy, and conservation.

Transfer Credit: Transfers to CSU; UC.