# ENVIRONMENTAL SCIENCE, ASSOCIATE IN SCIENCE DEGREE FOR TRANSFER

**Banner Code:** 2_AST_ENVS
**Control Number:** 41101
**Financial Aid Eligible**

The Associate in Science in Environmental Science for Transfer degree is an interdisciplinary degree that combines social science, policy and human behavior with physical and biological sciences. The degree consists of earth sciences and economics with a focus on the environment. Students will learn how natural processes work with human behavior and resource use and how productive activities degrade the environment. The program will also emphasize environmental policy and regulation as it relates to pollution. The degree emphasizes enhancement of quantitative skills to be applied to environmental applications and decision making. Courses in biology, chemistry, geography, geology, and physics explain the Earth's processes. Courses in social science examine human impacts on the environment, resource use, and regulation. The mathematical tools learned in calculus and statistics provide a foundation for measuring environmental impacts. Upon completion of the Associate in Science in Environmental Science for Transfer, the students will be prepared for transfer to pursue a baccalaureate degree in Environmental Science or Environmental Studies.

## Program Level Learning Outcomes

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

1. Develop an interdisciplinary perspective on the Earth's natural processes by applying the scientific method to environmental issues.
2. Describe the role of humans' interaction with the environment through the use of natural resources and production.
3. Compare and contrast global environmental policy in the aim of correcting market failures related to the environment.
4. Explain how biological processes, such as water, carbon, oxygen, and nitrogen cycles, source and sink functions, and population biology, affect resource use and sustainability.
5. Analyze environmental patterns related to Earth's physical processes and geography, such as energy, heat, minerals, fossil fuels, landscape, and climate.

## Associate Degree for Transfer Graduation Requirements

Associate Degrees for Transfer require students to meet the following requirements:

- Completion of 60 semester units or 90 quarter units of degree-applicable courses,
- Minimum overall grade point average of 2.0,
- Minimum grade of “C” (or “P”) for each course in the major, and
- Completion of IGETC and/or CSU GE-Breadth.

**Students should consult a GWC counselor in order to select the best pathway to meet their educational goals. For students who intend to transfer, the choice of general education will be specific to both their major and transfer institution.**

| Course | Title | Units |
|---|---|---|
| **Required Core** | | |
| *Select one option of the following:* | | |
| **Option 1:** | | |
| BIOL G180<br>& BIOL G186 | Cell and Molecular Biology<br>and Diversity of Organisms | 10 |
| CHEM G180 | General Chemistry A | 5 |
| **Option 2:** | | |
| BIOL G180 | Cell and Molecular Biology | 5 |
| CHEM G180<br>& CHEM G185 | General Chemistry A<br>and General Chemistry B | 10 |
| **List A** | | **14-15** |
| BIOL G110 | Ecology and Field Biology | 3 |
| or ECON G130 | Environmental Economics and Policy | |
| GEOG G180<br>& G180L | Physical Geography<br>and Physical Geography Laboratory | 4 |
| or GEOL G110 | Physical Geology | |
| MATH G160 | Introduction To Statistics | 3-4 |
| or ECON G160 | Statistics for Business and Economics | |
| or PSYC G140 | Statistics for the Behavioral Sciences | |
| MATH G180 | Calculus 1 | 4 |
| or MATH G140 | Business Calculus | |
| **List B** | | **11** |
| ECON G170 | Principles of Microeconomics | 3 |
| PHYS G185<br>& PHYS G280 | Calculus Based Physics: Mechanics<br>and Calculus Based Physics: Electricity/<br>Magnetism | 8 |
| Or | | |
| PHYS G120<br>& PHYS G125 | Algebra Based Physics: Mechanics<br>and Algebra Based Physics: Electricity/<br>Magnetism | 8 |
| **Major Total** | | **40-41** |
| **Total units that may be double-counted** | | **12-16** |
| **GE Pattern (CSU GE-Breadth or IGETC)*** | | **31-33** |
| **Transferable Electives (as needed to reach 60 units)** | | **0-5** |
| **Total Units** | | **60** |

**Use of a transferable general education pattern designed for STEM (i.e., IGETC or CSU GE Breadth for STEM) is presumed.**

## Recommended Program Sequence

These sequences are general course maps for students to finish all major and general education requirements for two-year completion of degrees, completion of short-term certificates, and/or fulfillment of transfer requirements. However, this may not be an appropriate path for all students. The two-year sequence is based on English and Math placement and meeting other course prerequisites. **Students are advised to meet with a GWC Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

## Year 1:

| Course | Title | Units |
|---|---|---|
| **Semester 1** | | |
| ECON G130 | Environmental Economics and Policy (recommended to satisfy Area D: Social & Behavioral Science course) | 3 |
| or BIOL G110 | Ecology and Field Biology | |
| CHEM G180 | General Chemistry A | 5 |
| ENGL G100 | Freshman Composition ^ | 4 |
| Area A1: Oral Communication course | | 3 |
| Area C1: Arts course | | 3 |
| *Units* | | *18* |

| Course | Title | Units |
|---|---|---|
| **Semester 2** | | |
| BIOL G180 | Cell and Molecular Biology | 5 |
| GEOG G180 & G180L | Physical Geography and Physical Geography Laboratory | 4 |
| or GEOL G110 | Physical Geology | |
| MATH G180 | Calculus 1 | 4 |
| or MATH G140 | Business Calculus | |
| Area A3: Critical Thinking course | | 3-4 |
| *Units* | | *16-17* |

## Year 2:

| Course | Title | Units |
|---|---|---|
| **Semester 3** | | |
| BIOL G186 | Diversity of Organisms | 5 |
| or CHEM G185 | General Chemistry B | |
| MATH G160 | Introduction To Statistics | 3-4 |
| or ECON G160 | Statistics for Business and Economics | |
| PHYS G185 | Calculus Based Physics: Mechanics | 4 |
| or PHYS G120 | Algebra Based Physics: Mechanics | |
| Area C: Arts & Humanities course | | 3 |
| *Units* | | *15-16* |

| Course | Title | Units |
|---|---|---|
| **Semester 4** | | |
| ECON G170 | Principles of Microeconomics | 3 |
| HIST G170 | History Of The United States To 1876 | 3 |
| or HIST G175 | History of the United States Since 1876 | |
| Area E: Lifelong Learning & Self-Development course | | 3 |
| Area F: Ethnic Studies course | | 3 |
| *Select one of the following:* | | |
| PHYS G280 | Calculus Based Physics: Electricity/ Magnetism (if PHYS G185 was taken) | 4 |
| PHYS G125 | Algebra Based Physics: Electricity/ Magnetism (if PHYS G120 was taken) | 4 |
| *Units* | | *16* |
| **Total minimum units required** | | **60** |

^ Program sequence may not be recommended for students who self-place into ENGL G100S. Students should see a Counselor for appropriate advisement.