

Department of Earth and Environmental Sciences, CSCI



ASSESSMENT PLAN: B.S. in Environmental Science

Date prepared: Spring 2023

PROGRAM MISSION

CSUEB Environmental Science B.S. Program Description

Environmental science is an interdisciplinary field, focusing on the study of physical, chemical, and biological processes that underpin both natural ecosystems and human-influenced systems. While their focus is often on the physical and life sciences, environmental scientists must also be mindful of social issues, political context, economic factors, and human well-being in order to understand environmental issues and address environmental problems. The coursework for the Environmental Science degree reflects this broad, systems-level approach, with coursework in science and mathematics, as well as the social sciences. This allows students to gain a deeper understanding of the science and social issues involved in addressing complex environmental problems such as environmental contamination, access to food and safe drinking water, and climate change.

The undergraduate degree program in Environmental Science includes a core of required courses intended to provide students with an understanding of the fundamental principles of biology, chemistry, geology, mathematics, physics, and statistics necessary to understand environmental challenges. In addition, further required courses and electives allow students to apply this fundamental knowledge to broader environmental issues and problems, and to deepen their understanding of natural systems, human systems, and sustainability. The Environmental Science B.S. program serves as preparation for employment in a variety of related fields, both in technical and policy/management roles requiring extensive technical knowledge and background. Due to the breadth of disciplines involved in environmental science, students wishing to do independent work professionally may wish to consider graduate study in a field of specialization, if further training is required for their chosen path.

PROGRAM STUDENT LEARNING OUTCOMES (PLOs)

Students graduating with a B.S. in Environmental Science will be able to:

PLO 1 <i>ILO 1, 5, 6</i>	Demonstrate foundational knowledge of Earth processes, natural systems, and the effects of human activity (<i>Knowledge</i>)
PLO 2 <i>ILO 1, 2, 3, 4, 6</i>	Develop fundamental field, laboratory, and computer skills necessary for environmental science (<i>Skills</i>)
PLO 3 <i>ILO 1, 2, 3, 5, 6</i>	Critically evaluate, analyze, and integrate scientific findings, data, and socioeconomic context to understand environmental issues (<i>Analysis and synthesis</i>)
PLO 4 <i>ILO 1, 2, 3, 4, 6</i>	Effectively communicate in oral and written form, and develop collaborative skills (<i>Communication</i>)
PLO 5 <i>ILO 1, 3, 5, 6</i>	Understand the role of the environmental science in local, regional, and global sustainability, and the role of an ethical scientist (<i>Sustainability and global thinking</i>)

Year 1: 2023-2024

1. Which PLO(s) to assess	PLO 2 (<i>Skills</i>), PLO 3 (<i>Analysis and synthesis</i>)
2. Assessment indicators	ENSC 499 (Capstone) final project
3. Sample (courses/# of students)	ENSC 499, 15
4. Time (which semester(s))	Spring 2024
5. Responsible person(s)	Patty Oikawa, Jean Moran, Emilio Grande
6. Ways of reporting (how, to who)	The report is delivered to the Chair and distributed to the faculty. It is also included within the department report.
7. Ways of closing the loop	Areas of improvement are discussed at faculty meetings, improvements and revisions to future courses are expected.

Year 2: 2024-2025

1. Which PLO(s) to assess	PLO 1 (<i>Knowledge</i>)
2. Assessment indicators	Course assignments and projects, with department rubric
3. Sample (courses/# of students)	ENSC 499 (Capstone), 15 or ENSC 397 (Advanced Field), 15
4. Time (which semester(s))	Spring 2024, Summer 2024
5. Responsible person(s)	Emilio Grande, Patty Oikawa, dept faculty
6. Ways of reporting (how, to who)	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and “closing the loop.”
7. Ways of closing the loop	Identified “areas for improvement” will be incorporated into modified/updated courses for future majors

Year 3: 2025-2026

1. Which PLO(s) to assess	PLO 4 (<i>Communication</i>), PLO 5 (<i>Sustainability & Global Thinking</i>)
2. Assessment indicators	Course assignments and projects, oral presentations; department rubrics will be used
3. Sample (courses/# of students)	ENSC 499 (Capstone), 15
4. Time (which semester(s))	Spring 2026.
5. Responsible person(s)	Patty Oikawa, Jean Moran, Emilio Grande, dept faculty
6. Ways of reporting (how, to who)	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and “closing the loop.”
7. Ways of closing the loop	Identified “areas for improvement” will be incorporated into modified/updated core courses for future majors.

Year 4: 2026-2027

1. Which PLO(s) to assess	PLO 2 (<i>Skills</i>), PLO 3 (<i>Analysis and synthesis</i>)
2. Assessment indicators	ENSC 499 (Seminar) final project, ENSC 397 (Advanced Field course) field report
3. Sample (courses/# of students)	ENSC 499, 15; ENSC 397, 15
4. Time (which semester(s))	Spring 2027, Summer 2027
5. Responsible person(s)	Patty Oikawa, Jean Moran, Emilio Grande, dept faculty
6. Ways of reporting (how, to who)	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and “closing the loop.”
7. Ways of closing the loop	We will assess progress made since 2023-2024, adjust strategies. Revise program requirements as needed.

Year 5: 2027-2028

1. Which PLO(s) to assess	PLO 1 (<i>Knowledge</i>)
2. Assessment indicators	Course assignments and projects, oral presentations; department rubrics will be used
3. Sample (courses/# of students)	ENSC 499 (Capstone), 15 or ENSC 397 (Advanced Field), 15
4. Time (which semester(s))	Spring 2028, Summer 2028
5. Responsible person(s)	Patty Oikawa, Emilio Grande, dept faculty
6. Ways of reporting (how, to who)	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and “closing the loop.”
7. Ways of closing the loop	Assess progress made since 2024-2025, adjust strategies.