

Environmental Sciences

IN THE COLLEGE OF SCIENCES
ADMINISTERED BY THE DEPARTMENT OF GEOLOGICAL SCIENCES

OFFICE: Geology/Mathematics/Computer Science 237

TELEPHONE: 619-594-5587

E-MAIL: geology@sdsu.edu

Offered by the College of Sciences

Major in environmental sciences with the B.S. degree
in applied arts and sciences.

The Major

Environmental sciences is an interdisciplinary program leading to a Bachelor of Science degree in applied arts and sciences. The program will provide the student with a rigorous and broad foundation in those sciences most relevant to environmental issues. While the focus is on the physical environmental sciences, some coursework is required in biology, computer science, geography, and statistics. Those students wishing to concentrate more on the biological aspects of the environment, should consider the ecology emphasis offered by the Department of Biology.

Upon completion of the degree, students will be prepared to understand and contribute to a broad range of environmental problems confronting society. This major should be especially attractive to students who wish a broader background in the environmental sciences than is easily offered by individual departments. The major will prepare the student for employment in diverse situations in the dynamic and ever-changing environmental science job market. It will also be an excellent undergraduate major for students planning to go on to graduate school in any of the environmental sciences.

Advising

Students are required to meet with the undergraduate adviser in order to declare the major. Students wishing to major in environmental sciences are urged to meet with the adviser during their first semester.

Impacted Program

The environmental sciences major is an impacted program. To be admitted to the environmental sciences major, students must meet the following criteria:

- Complete preparation for the major;
- Complete a minimum of 60 transferable semester units;
- Have a minimum cumulative GPA of 2.0.

To complete the major, students must fulfill the degree requirements for the major described in the catalog in effect at the time they are accepted into the premajor at SDSU (assuming continuous enrollment).

Major Academic Plans (MAPs)

Visit <http://www.sdsu.edu/mymap> for the recommended courses needed to fulfill your major requirements. The MAPs website was created to help students navigate the course requirements for their majors and to identify which General Education course will also fulfill a major preparation course requirement.

Environmental Sciences Major

With the B.S. Degree in Applied Arts and Sciences

(Major Code: 49011) (SIMS Code: 777001)

All candidates for a degree in applied arts and sciences must complete the graduation requirements listed in the section of this catalog on "Graduation Requirements." Individual master plans are filed with both the environmental sciences adviser and the Office of Advising and Evaluations.

A minor is not required with this major.

Preparation for the Major. Environmental Science 100 [or Sustainability 100]; Biology 203, 203L, 204, 204L; Biology 215 or Statistics 250; Chemistry 200; Geography 101; and Mathematics 124, Physics 180A, 180B, 182A, 182B or Mathematics 150, 151, Physics 195, 195L, 196, 196L. (34-38 units)

Graduation Writing Assessment Requirement. Passing the Writing Placement Assessment with a score of 10 or completing one of the approved upper division writing courses (W) with a grade of C (2.0) or better. See "Graduation Requirements" section for a complete listing of requirements.

Study Abroad Requirement. All environmental sciences majors are required to participate in an international experience. Students participate in residence for two or more weeks (exceptions must be approved by the dean of the college for students who, because of serious and compelling life events or physical limitations, cannot meet this requirement). Majors must complete one of the following with the approval of the undergraduate adviser;

1. A CSU Study Abroad Program;
2. An SDSU Exchange Program;
3. An SDSU Semester Abroad Program;
4. An SDSU Study Travel Program;
5. General Studies 450;
6. Science 350.

Major. A minimum of 36-37 upper division units to include Environmental Science 498A-498B; Biology 354; Geography 511; Geography 484 or 591 and 591L or Geological Sciences 505; Geological Sciences 305 or Environmental Engineering 355; 18 units selected from Environmental Science 301, 544 [or Biology 544], Biology 350, 517, 540, Chemistry 571, Computer Science 558, Economics 455 or 456, Geography 370, 409, 570, 572, 574, Geological Sciences 530 or 551, Mathematics 336, Science 350.

Courses (ENV S)

Refer to *Courses and Curricula and University Policies* sections of this catalog for explanation of the course numbering system, unit or credit hour, prerequisites, and related information.

LOWER DIVISION COURSES

ENV S 100. Environmental Sciences (3) [GE]

(Same course as Sustainability 100)

The earth as an ecosystem composed of biological, chemical, and physical systems and how these systems interact with one another and the human population.

ENV S 299. Special Study (1-3)

Prerequisites: Consent of program director and instructor.
Individual study.

UPPER DIVISION COURSES

(Intended for Undergraduates)

ENV S 301. Energy and the Environment (3) [GE]

Prerequisites: Completion of the General Education requirements in Communication and Critical Thinking and Foundations of Learning II.A., Natural Sciences and Quantitative Reasoning.

Fundamental physical concepts underlying energy, its conversion, and impact on the environment.

ENV S 302. Climate Change Solutions (3) [GE]

Prerequisites: Completion of the General Education requirements in Communication and Critical Thinking and Foundations of Learning II.A., Natural Sciences and Quantitative Reasoning.

Carbon-neutral societies, human-nature harmonious communities, and optimal applications of climate and natural resources. Climate change actions, data visualization, governance, mitigation policies, narrative, and technologies. Locally and globally scalable solutions for climate changes.

ENV S 496. Selected Topics in Environmental Science (1-4)

Prerequisite: Consent of instructor.

Selected topics in environmental and related sciences. May be repeated with new content. See *Class Schedule* for specific content. Limit of nine units of any combination of 296, 496, 596 courses applicable to a bachelor's degree. Maximum credit six units.

Environmental Sciences

ENV S 498A-498B. Senior Seminar in Environmental Sciences (3-3) Cr/NC

Prerequisite: Senior standing in the environmental sciences major.

Research projects related to an environmental issue in the San Diego and California region.

UPPER DIVISION COURSES

(Also Acceptable for Advanced Degrees)

ENV S 544. Terrestrial Ecosystems and Climate Change (3) (Same course as Biology 544)

Prerequisite: Biology 354.

Controls on fluxes and stocks of nutrients within terrestrial ecosystems, ecosystem responses, feedbacks to climate change. Climate systems, water transport, production and decomposition, nutrient cycling, stable isotopes, spatial and temporal integration.

ENV S 596. Advanced Topics in Environmental Science (1-4)

Prerequisite: Consent of instructor.

Advanced special topics in environmental sciences. May be repeated with new content. See *Class Schedule* for specific content. Limit of nine units of any combination of 296, 496, 596 courses applicable to a bachelor's degree. Maximum credit of six units of 596 applicable to a bachelor's degree. Credit for 596 and 696 applicable to a master's degree with approval of the graduate adviser.

Environmental Studies

Refer to "Sustainability" in this section of the catalog.

Refer to "Environmental Studies Certificate" in

"Interdisciplinary Programs" in this section of the catalog.