

# ENVIRONMENTAL SCIENCE AND POLICY

College of Liberal Arts  
College of Natural Sciences and Mathematics

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## Career Possibilities

Environmental Analyst • Teacher • Ecologist • Geochemist  
• Environmental Impact Report Writer • Community Development Specialist • Urban Planner • Environmental Planner • Peace Corps • Non-Governmental Organization Activist • Mass Media (Journalism, Radio, Television)  
• Environmental Advocate • Environmental Consultant  
• Public Relations • Public Policy Administrator • Environmental Law • Environmental Health • Environmental Economics • Environmental Toxicology • Sustainable Development Specialist • Green Business (For more information, see [www.careers.csulb.edu](http://www.careers.csulb.edu).)

## Introduction

The Environmental Science and Policy (ES&P) degrees program is jointly housed in the College of Liberal Arts and the College of Natural Sciences and Mathematics, reflecting its inherent interdisciplinary nature. A Bachelor of Arts and a Bachelor of Science as well as a minor are available. See the ES&P web-page for details. We highly encourage B.A. students to double major or seek a minor in a closely related discipline such as anthropology, economics, geography, international studies or political science. Students in the B.S. degree program are encouraged to double major or seek a minor in anthropology, biology, chemistry, earth science, ecology, economics, geography, geology, or political science.

## Bachelor of Arts in Environmental Science and Policy (120 units)

### Requirements

Lower Division:

Take all of the following course:

BIOL 260 Biostatistics (3)

Prerequisites: BIOL 211 or BIOL 207 or MICR 200; MATH 111 or 113 or 119A or 122 all with a grade of "C" or better.

ECON 100 Principles of Macroeconomics (3)

Prerequisites: MATH 103 or higher and one GE Foundation course.

ECON 101 Principles of Microeconomics (3)

Prerequisite/Corequisite: MATH 103 or higher.

ES P 200 California Environmental Issues (3)

Prerequisites/Corequisites: GEOL 102, 104; BIOL 200; ECON 101 or 300.

GEOL 102 General Geology (3)

Prerequisites/Corequisites: A course that fulfills the A.1 GE requirement and three years of high school mathematics including algebra, geometry, and intermediate algebra or the equivalent.

GEOL 104 Geology Laboratory (1)

Prerequisites/Corequisites: A course that fulfills the A.1 GE requirement and three years of high school mathematics including algebra, geometry, and intermediate algebra or the equivalent, and concurrent or prior enrollment in GEOL 102.

GEOL 280 Water Resources and Society (3)

Prerequisites: GEOL 102, 104. A grade of "C" or better in MATH 117, or four years of high school mathematics.

Take one of the following choices:

BIOL 200 General Biology (4)

Prerequisite: GE Foundation requirements.

BIOL 211 Introduction to Evolution and Diversity (4)

Prerequisite/Corequisite: CHEM 111A with a grade of "C" or better.

Take one of the following courses:

CHEM 111A, 140; GEOL 191;

Take one of the following courses:

MATH 115, 119A, 122

\*Take one of the following courses:

BIOL 100 or GEOG 140

or

Any Introductory Environmental Science or Studies course

Upper Division

Take all of the following courses:

BIOL 350 General Ecology (3)

Prerequisites: BIOL 211, 212, 213, 260; MATH 119A or 122 all with a grade of "C" or better. Chemistry and physics recommended.

ECON 310 Microeconomic Theory (3)

Prerequisites: ECON 100, ECON 101, and either MATH 115 or MATH 122, with grades of "C" or better in all prerequisite courses.

ES P 300 Environmental Law and Policy (3)

Prerequisites: GE Foundation requirements; ECON 100 and 101, or ECON 300; POSC 100; and upper division standing.

ES P 400 Environmental Science and Policy Capstone Project (3)

Prerequisites: BIOL 350; ECON 462 (or 463 or 464); ES P 200, 300; GEOG 481 or 485; GEOL 300I.

GEOL 300I Earth Systems and Global Change (3)

Prerequisites: GE Foundation requirement, upper division standing, and CHEM 100 or CHEM 111A or GEOL 102 or GEOL 106 with a grade of "C" or better.

Take one of the following courses:

GEOG 473 Remote Sensing (4)

Prerequisites GEOG 200 (or equivalent) and GEOG 280 or consent of instructor.

GEOG 481 Geographic Information Science for Natural Sciences (4)

Prerequisites: Junior/Senior/Graduate standing; GEOG 140 or BIOL 153 or GEOL 102.

Take one course selected from the following:

POSC 328, 329, 431, 432

Take one course selected from the following:

ECON 462, 463, 464

Take one course selected from the following:

GEOG 442, 447, 455, 458

Take one course selected from the following:

HIST 464I, 482I; ENGL 444; ASAM 350; WGSS 424

Take one course selected from the following:

ANTH 450; BIOL 457, 459, ENGL 444; ESP 495; GEOG 443, 448, 486, 492; HIST 482I; NSCI 492

Additional 6 units of course work selected from courses approved as options satisfying upper division requirements above or from the following approved list of additional courses; all must be upper division or approved by the advisor.

Additional Approved Courses:

ANTH 301; BIOL 303, 450, 456; ECON 355, 403, 410, 434, 485, 486; ENGR 302I; ES P 490, 491, 499; GEOG 340, 355I, 400, 440, 441, 443, 444, 445, 452, 460, 471, 474, 475, 482, 487A, 488; GEOL 303, 339, 410; SOC 350, 355, 410I

## Bachelor of Science in Environmental Science and Policy (120 units)

### Requirements

Lower Division:

Take all the following courses:

BIOL 211 Introduction to Evolution and Diversity (4)  
Prerequisite/Corequisite: CHEM 111A with a grade of "C" or better.

BIOL 212 Introduction to Cell and Molecular Biology (4)  
Prerequisites: Completion of BIOL 211 and CHEM 111A with grades of "C" or better.

BIOL 213 Introduction to Ecology and Physiology (4)  
Prerequisites: BIOL 211, 212, CHEM 111B, each with a grade of "C" or better.

BIOL 260 Biostatistics (3)  
Prerequisites: BIOL 211 or BIOL 207 or MICR 200; MATH 111 or 113 or 119A or 122 all with a grade of "C" or better.

CHEM 111A General Chemistry (5)  
Prerequisites: A passing score on the Chemistry Placement Examination. (Credit in CHEM 101 does not substitute for a passing score on the Chemistry Placement Examination) and a "C" or better in MATH 113 or 117 or 119A or 122. One year of high school chemistry is strongly recommended. (Recommended for students who intend to pursue careers in science or engineering).

CHEM 111B General Chemistry (5)

Prerequisite: CHEM 111A with a grade of "C" or better.

ES P 200 California Environmental Issues (3)

Prerequisites/Corequisites: GEOL 102, 104; BIOL 200; ECON 101 or 300.

GEOL 102 General Geology (3)

Prerequisites/Corequisites: A course that fulfills the A.1 GE requirement and three years of high school mathematics including algebra, geometry, and intermediate algebra or the equivalent.

GEOL 104 Geology Laboratory (1)

Prerequisites/Corequisites: A course that fulfills the A.1 GE requirement and three years of high school mathematics including algebra, geometry, and intermediate algebra or the equivalent, and concurrent or prior enrollment in GEOL 102.

GEOL 280 Water Resources and Society (3)

Prerequisites: GEOL 102, 104. A grade of "C" or better in MATH 117, or four years of high school mathematics.

MATH 119A (or 122) Survey of Calculus I (3)

Prerequisite: Appropriate MDPT placement or a grade of "C" or better in MATH 113.

MATH 119B (or 123) Survey of Calculus II (3)

Prerequisite: MATH 119A or 122.

(BIOL 111, 111L, 212, 212L, 213, 213L are required if courses were taken prior to catalog year 2010-11; also, if a transfer student took courses equivalent to BIOL 211, 212, or 213 at another institution without labs, they must take 212L, 213L, and 213L here)

Upper Division:

Take all the following courses:

BIOL 350 General Ecology (3)

Prerequisites: BIOL 211, 212, 213, 260; MATH 119A or 122 all with a grade of "C" or better. Chemistry and physics recommended.

CHEM 327 (or 320A or 322A) Fundamentals of Organic Chemistry (3)

Prerequisite: CHEM 111A with a grade of "C" or better; CHEM 111B is recommended.

ECON 300 (or 100 & 101) Fundamentals of Economics (3)

Prerequisites: GE Foundation requirements.

ECON 310 Microeconomic Theory (3)

Prerequisites: ECON 100, ECON 101, and either MATH 115 or MATH 122, with grades of "C" or better in all prerequisite courses.

ES P 300 Environmental Law and Policy (3)

Prerequisites: GE Foundation requirements; ECON 100 and 101, or ECON 300; POSC 100; and upper division standing.

ES P 400 Environmental Science and Policy Capstone Project (3)

Prerequisites: BIOL 350; ECON 462 (or 463 or 464); ES P 200, 300; GEOG 481 or 485; GEOL 300I.

GEOL 300I Earth Systems and Global Change (3)

Prerequisites: GE Foundation requirement, upper division standing, and CHEM 100 or CHEM 111A or GEOL 102 or GEOL 106 with a grade of "C" or better.

Take one of the following courses:

GEOG 481 Geographic Information Science for Natural Sciences (4)

Prerequisites: Junior/Senior/Graduate standing; GEOG 140 or BIOL 153 or GEOL 102.

GEOG 485 Principles of Geographic Information Science

(4)  
Prerequisites: GEOG 200 or equivalent; GEOG 380 and 482.

Take one course from the following:

ECON 462, 463, 464

Take 18 additional units selected from the following approved list, 8 units must be upper division or approved by the advisor.

### *Natural Science Track:*

12 units must be in Biology, Microbiology, Environmental Science and Policy, Geology, Chemistry, Chemical Engineering, Mathematics and Statistics. Note: Within these disciplines, PHYS 100A,B (or 151, 152) are required.

### *Social Science Track:*

12 units must be in Anthropology, Economics, Geography, or Mathematics/Statistics from the list below:

ANTH 140, 301, 450; BIOL 303, 313, 324, 340, 353, 427, 450, 451, 456, 457, 459, 464, 465, 467; CE 406; CHEM 251, 320B, 322B, 323A,B, 377A,B, 441A, 451; CH E 475; ENGR 302I; ECON 355, 403, 410, 434, 462, 463, 464, 485, 486; ES P 490, 491, 495, 499; GEOG 400, 440, 441, 442, 443, 444, 446, 452, 455, 458, 460, 473, 474, 475, 482, 484, 486, 487A, 488; GEOL 190, 250, 303, 339, 410, 443, 454, 456, 460, 461, 465, 466, 477; H SC 422; MATH 380 or STAT 380; MICR 200, 211; NSCI 492; PHYS 100A,B or PHYS 151, 152; STAT 381.

## **Minor in Environmental Science and Policy**

This minor may be combined with any major at CSULB except the B.A. and B.S. in Environmental Science and Policy. It requires a minimum of 20 units (at least 9 of which must be upper division) of course work in Anthropology, Biology, Microbiology, Economics, Environmental Science and Policy, Geography, or Geology.

### **Prerequisites**

Take all the following prerequisite courses (do not count toward the minor):

BIOL 200; ECON 300 (or 100 and 101); GEOL 102, 104.

### **Requirements**

Take all the following courses:

ES P 200 California Environmental Issues (3)  
Prerequisites/Corequisites: GEOL 102, 104; BIOL 200; ECON 101 or 300.

ES P 300 Environmental Law and Policy (3)  
Prerequisites: GE Foundation requirements; ECON 100 and 101, or ECON 300; POSC 100; and upper division standing.

Take a minimum of 14 units from the following:

ANTH 140, 405, 481; BIOL 350, 353, 450, 451, 456, 457, 459, 464; MICR 303; ECON 306I, 462, 463, 464; ES P 400; GEOG 440, 442, 443, 444, 455, 458, 460, 487A; and GEOL 190, 280, 300I, 303, 465, 466, 477.

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## **Environmental Science and Policy Courses (ES P)**

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### **LOWER DIVISION**

#### **200. California Environmental Issues (3)**

Prerequisites/Corequisites: GEOL 102, 104; BIOL 200; ECON 101 or 300.

Introduction to the history, nature, status, and future of a major environmental issue in California. Biological, physical, and societal aspects will be examined and integrated with the goal of developing a plan to meet the challenges of the 21st Century.

Letter grade only (A-F). (Lecture 2 hrs., discussion 1 hr., and field trips.)

### **UPPER DIVISION**

#### **300. Environmental Law and Policy (3)**

Prerequisites: GE Foundation requirements; ECON 100 and 101, or ECON 300; POSC 100; and upper division standing.

Property rights, federal and state roles in decision-making, rights and limits of both private parties and the broad public interest. Emphasis on science in decision-making, choices between regulations and incentives, and role of bureaucracy.

Letter grade only (A-F). (2 hrs lecture, 1 hr discussion).

#### **400. Environmental Science and Policy Capstone Project (3)**

Prerequisites: BIOL 350; ECON 462 (or 463 or 464); ES P 200, 300; GEOG 481 or 485; GEOL 300I.

An interdisciplinary evaluation of the physical, biological, social, economic, and legal dimensions of a local environmental issue. Examples include policies to control surface water run-off, policies for marine protected areas, dredging harbors, and developing, preserving, restoring wetlands and estuaries.

Letter grade only (A-F). (2 hrs lecture, 3 hr laboratory-field work).

#### **490. Selected Topics in Environmental Science and Policy (3)**

Prerequisite: Consent of instructor.

Topics of current interest in environmental science and policy selected for intensive development.

Letter grade only (A-F). May be repeated to a maximum of 6 units with different topics in different semesters. Topics announced in the *Schedule of Classes*.

#### **491. Senior Thesis/Project in Environmental Science and Policy (1-6)**

Prerequisites: Senior standing and consent of instructor.

Final completion of a thesis or research project.

May be repeated to a maximum of 6 units in different semesters. Letter grade only (A-F).

#### **495. Environmental Science and Policy Internship (3)**

Prerequisite: Consent of instructor.

Practical experience in an appropriate business, government, or non-profit organization.

May be repeated to a maximum of 6 units in different semesters. Credit/No credit grading only.

#### **499. Environmental Science and Policy Directed Study (1-6)**

Prerequisite: Consent of instructor.

Independent study under the supervision of a faculty member.

May be repeated to a maximum of 6 units in different semesters.