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Environmental Sciences

College of Natural Resources (http://

nature.berkeley.edu/site)

Department Office: 260 Mulford Hall, (510) 643-9479

Major Director: Dennis Baldocchi, PhD Program Website: Environmental Sciences (<u>http://</u>

environmentalsciences.berkeley.edu)

Major

The environmental sciences major is administered by the College of Natural Resources (CNR), within the department of Environmental Science, Policy, and Management (<u>http://</u> <u>bulletin.berkeley.edu/archive/2013-14/departmentsandsubjects/</u> <u>environmentalsciencepolicyandmanagement</u>) . The curriculum of the major emphasizes a broad and comprehensive education in the fundamentals of biology, chemistry, physics, and mathematics, and in social science directly related to environmental problems. Such training is indispensable for those who wish to acquire more than a superficial understanding of the impact of human activities on the environment. Students acquire the necessary skills to rigorously document and predict environmental problems and to make sound recommendations for their avoidance or mitigation.

The environmental sciences major is concerned with interactions between human activities and biological and physical environments on all scales, from local to global. Students elect to emphasize one of three disciplinary fields: biological science, physical science, or social science. The differences between these emphases lie mainly in upper division electives; most required courses, both lower and upper division, are virtually the same for each of the three emphases. Details of course requirements appear below.

The senior research seminar, Environmental Sciences 196A-196B, in which students work intensively on individual research projects under faculty guidance, is a key feature of this major.

Declaring the Major

Students in the College of Natural Resources may enter as freshmen into the environmental sciences major. Students wishing to transfer from another major and/or college should contact the undergraduate adviser, Carina Galicia, in 260 Mulford Hall, or by email at EnvSci@berkeley.edu, for details. Students transferring from a California community college are also encouraged to utilize ASSIST (http://assist.org) for course selection guidelines.

Required Courses for All Three Areas of Emphasis (Biological, Physical, Social Science)

Lower Division Major Requirements

- ESPM Environmental Science Core, ESPM Social Science Core, plus 2 more breadth courses
- Environmental Economics and Policy (EEP) C1 or Economics C3
- Biology 1A-1B (required for biological science) or Biology 11/11L plus one of the following: Environmental Science, Policy, and Management (ESPM) 102A, 113, 114, 115B, 116A, 116B; Integrative Biology 153, 154, 155 (option for physical and social science only)

- Chemistry 1A/1AL and 3A/3AL (for biological and physical science); Chemistry 1A/1AL and either 1B or 3A/3L for social science
- Mathematics 16A-16B (for biological and social science); Mathematics 1A-1B (required for physical science)
- Physics 7A-7B (required for physical science), Physics 8A (for biological and social science)

Upper Division Major Requirements

- Energy and Resources 102 or ESPM C104/EEP C115 or ESPM 183
- Statistics 131A (prerequisite to ESPM 100ES), ESPM 173, Public Health 141 (offered summer only), or Public Health 142A
- ESPM 100ES (prerequisite to ESPM 175A-175B)
- ESPM 175A/L and 175B/L
- One of the following: ESPM 102D, ESPM 151, ESPM 155, ESPM 160AC/History 120AC, ESPM 161, ESPM 162, ESPM 163AC/
 Sociology 137AC, ESPM 166, ESPM C167/Public Health C160, ESPM 168, ESPM 169, ESPM 186; EEP C101/Econ C125, 131, EEP 140AC, EEP 153, EEP 162, C180; ERG 170, ERG 175; Geography 130, 138; Anthropology 137

In addition, students must take at least one upper division course in the chosen area of emphasis (biological, physical, social science) and the second from any area of emphasis. Please check the ES major website (<u>http://environmentalsciences.berkeley.edu</u>) for the list of approved courses. Students are required to have a minimum of 30 upper division units of major coursework. Any remaining units may come from courses on the electives list.

Honors Program

To be eligible for honors, students must meet the minimum GPA established by the college. Contact the CNR Honors Program Coordinator for further details.

ENV SCI 8X Climate Change: The Interface of Science and Public Policy 2 Units

Department: Environmental Sciences

Course level: Undergraduate Term course may be offered: Summer

Grading: Letter grade.

Hours and format: 5 hours of Lecture per week for 6 weeks. The possible impacts of climate changes enhanced by or following from human activities create challenges for planners, policy-makers, industrialists, and all citizens of the globe. This course seeks to examine the science of climate change and the policy issues that follow from that change.

Instructor: Berry

ENV SCI 10 Introduction to Environmental Sciences 3 Units

Department: Environmental Sciences

Course level: Undergraduate

Terms course may be offered: Fall and spring Grading: Letter grade.

Hours and format: 3 hours of lecture and 1 hour of discussion per week and 1 8-hour fieldtrip per semester.

A survey of biological and physical environmental problems, focusing on geologic hazards, water and air quality, water supply, solid waste, introduced and endangered species, preservation of wetland ecosystems. Interaction of technical, social, and political approaches to environmental management.

ENV SCI 10L Field Study in Environmental Sciences 1 Unit

Department: Environmental Sciences

Course level: Undergraduate Term course may be offered: Fall

Grading: Letter grade.

Hours and format: 2 hours of Fieldwork per week for 15 weeks.

Prerequisites: 10 (must be taken concurrently). Field and laboratory studies of Strawberry Creek throughout its course from the hills to the Bay are used to exemplify integration of the physical, biological, and social components of science-based approaches to environmental management.

Instructors: Berry, Kondolf

ENV SCI 24 Freshman Seminar 1 Unit

Department: Environmental Sciences

Course level: Undergraduate

Terms course may be offered: Fall and spring Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

ENV SCI 84 Sophomore Seminar 1 or 2 Units

Department: Environmental Sciences

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty