Environmental Horticulture and Urban Forestry

Environmental Horticulture and Urban Forestry

133. Woody Plants in the Landscape: Growth, Ecology and Management (4)
Lecture—3 hours; laboratory—2 hours; discussion—1 hour. Prerequisite: Biological Sciences 1C or the equivalent preparation in plant biology. Principles and practices of managing trees and shrubs in the urban landscape and other managed environments. Topics include woody plant form; growth response and adaptation; tree management in relation to soil, moisture, climate, pests and diseases. GE credit: SciEng | SE

150. Genetics and Plant Conservation: The Biodiversity Crisis (3)
Lecture/discussion—3 hours. Prerequisite: Biological Sciences 1C or the equivalent. Conservation of genetic diversity, measurement of diversity, threats to diversity and reasons for protection, the process of extinction, distribution of diversity, determination of what to conserve and means of conservation. Examples drawn largely from forest tree species. GE credit: SciEng | SE, SL—III. (III) Neale

160. Restoration Ecology (3)
Lecture—3 hours. Prerequisite: Plant Biology/Evolution and Ecology 117 or Evolution and Ecology 121 or Plant Biology 147 or the equivalent. Conceptual bases of restoration ecology; tools used by restoration ecologists to solve practical problems; scope and success of actual restoration projects. GE credit: SciEng | SE, SL, WE—II. (III) Eviner

160L. Restoration Ecology Laboratory (1)
Lecture/laboratory/discussion—3 hours. Prerequisite: course 160 (may be taken concurrently). Companionship field course to course 160. A series of part-day and all-day visits to various field sites, involving site evaluations, guest field presentations by local restorationists, and actual restoration activities. Not open for credit to students who have completed course 160 prior to spring 2004. GE credit: SciEng | SE, SL—III. (III) Eviner

Graduate

229. Analysis of Horticultural Problems (5)
Lecture—1 hour; laboratory—8 hours; discussion—1 hour; project. Prerequisite: equivalent of B.S. degree in Environmental Horticulture and Urban Forestry, Plant Biology, Botany, Environmental Systems and Environment, or related major, or consent of instructor. Methods of analysis of common plant disorders seen in the landscape, greenhouse and nursery. Diagnosis of plant disorders caused by soil, water, insects, disease, chemical agents, climatic conditions or cultural practices. Approaches to diagnosis that emphasize acquisition and integration of information. Not open for credit to students who have completed course 241.

Environmental Horticulture and Urban Forestry

(College of Agricultural and Environmental Sciences)

Faculty. See Department of Plant Sciences, on page 476.

The Major Program

Students majoring in Environmental Horticulture and Urban Forestry learn how plants improve the environment and the quality of our lives. The major focuses on the biological and physical concepts and horticultural principles of plant production, management of plants and plant ecosystems in landscape settings and sociological aspects of plant/people interactions in the urban environment. Plants are used to revegetate and restore disturbed landscapes, control erosion and pollution, and improve water consumption. The ornamental use of plants to improve the aesthetic quality of urban and rural landscapes, recreational areas, interspaces and commercial sites is an important area of study. Students may select one or more of the following three areas of specialization: Floriculture/Nursery, Plant Biodiversity/Restoration, or Urban Landscape Management.

Internships and Career Opportunities. Students are encouraged to develop internships on or off campus to augment their activities in the classroom and laboratory. Internships are available with the department's facility, the UC Davis Arboretum, landscape designers, government agencies or regional nurseries. Career opportunities in this field include growing and/or managing plants in a variety of settings, including nurseries and arboretums, consulting as an urban landscape, or restoration horticulturist; business ownership; working for public agencies or private landscape firms/corporations; park management and landscape contracting.

B.S. Major Requirements:

UNITS
Communications 1 recommended as part of the College English Composition Requirement or the Words and Images Core Literacy Component.

Preparatory Subject Matter

- Environmental Horticulture 1 and 6 ...............7
- Landscape Architecture 30 ........................4
- Biological Sciences 2A, 2B, and Plant Sciences 2A-2B ..........7-9
- Chemistry 2A-2B ........................................10
- Plant Sciences 21 ...................................3
- Mathematics 16A or Statistics 13 ..............3-4
- University Writing Program 102B, 102G, 104E, or other upper division composition course (may overlap with college composition requirement; may be satisfied by passing the English Composition exam) ..........0-4
- Lower division restricted electives ...............6
- Select one lower division resource science course and one lower division social science/humanities course in consultation with adviser; minimum 6 units.

Depth Subject Matter

- Environmental Horticulture 102 or Plant Sciences 100A ........................................3-4
- Environmental Horticulture 105 or Plant Sciences 105A ...................................4-5
- Plant Biology 117 or Plant Sciences 150 4-9
- Plant Sciences 171 ..........3
- Soil Science 100 ........................................5
- Select two courses from: Environmental Horticulture 110, Plant Pathology 120, Plant Sciences 105 or 176 ..........7-9
- Plant Sciences 192 (minimum of 3 units) ........3-9
- Select two upper division resource science courses and two upper division social science/humanities courses in consultation with adviser; minimum 6 units.

Areas of Specialization (choose one)

No course may be used to satisfy more than one requirement.

Floriculture/Nursery Option

- Environmental Horticulture 120, 125 ...............8
- Applied Biological Systems Technology 165 ..........................2
- Entomology 135 .....................................4
- Plant Sciences 100C or 158 or Soil Science 109 ...............4

B.S. Major Requirements:

UNITS
Environmental English Composition and Public Speaking Requirement ..........3-8
- University Writing Program 101, 102A-G, 104A-E, or passing the Upper Division English Composition Exam ..........0-4
- Communication 1 or 3 or Dramatic Art 10 ..........3-4

Environmental Horticulture 150, or Evolution and Eco 100, or Plant Biology 116 .......3-5
- Select one course from: Environmental Science and Management 141, Environmental Science and Policy 127, 155, Plant Sciences 130, 150, Wildlife, Fish, and Conservation Biology 155 ..........................3-4
- Select one additional class from section a or b ..........................3-5

Urban Landscape Management Option

Environmental Horticulture 100, 133 ..............8
- Applied Biological Systems Technology 165 ..........................2
- Plant Sciences 162 .....................................3
- Science and Society 18 or Landscape Architecture 150 ..........................3-4

Total Units for the Major .............114-130

Major Adviser. T.P. Young

Advising Center for the major is located in 2224 Plant and Environmental Sciences 5307527738.

Environmental Policy Analysis and Planning

(Complete of Agricultural and Environmental Sciences)

The Major Program

The major in environmental policy analysis and planning develops skills for designing and assessing policy in fields related to environmental quality and natural resource management and an understanding of governmental policymaking. Any student in good standing is eligible to transfer to the major; to do so, please see the staff adviser, Melissa Whaley, in 2134 Wickson Hall, or the master adviser, Prof. J. Sanchirico, in 2102 Wickson Hall.

The Program. This major provides students with a strong background in policy analysis, including the evaluation of policy alternatives and the study of factors affecting policy formulation and implementation. Key components of this interdisciplinary training include a general background in the natural sciences relevant to environmental policy, economics, political science, statistics, and research methodology to quantitatively analyze environmental problems and policy options. In addition, students are encouraged to develop substantive knowledge in a specific field of environmental policy, such as urban and regional planning, water policy, transportation and energy, climate policy, or conservation management.

Careers. Environmental policy analysis and planning graduates are prepared for employment in environmental, natural resource, energy, and transportation focused public agencies, consulting firms, non-governmental organizations, and businesses, or as legislative aides for elected representatives. The major is also excellent preparation for students who want to go on to graduate work in law, planning, public policy, environmental science, economics, or business.

B.S. Major Requirements:

UNITS
Environmental English Composition and Public Speaking Requirement ..........3-8
- University Writing Program 101, 102A-G, 104A-E, or passing the Upper Division English Composition Exam ..........0-4
- Communication 1 or 3 or Dramatic Art 10 ..........3-4

Quarter Offered. I—Fall, II—Winter, III—Spring, IV—Summer; 2015-2016 offering in parentheses.

Pre-Fall 2011 General Education (GE): ArtHum—Arts and Humanities; SciEng—Science and Engineering; SocSci—Social Sciences; DomDv—Domestic Diversity; Writ—Writing Experience

Fall 2011 and on Revised General Education (GE): AH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; ACH—American Cultures, DD—Domestic Diversity, DL—Oral Skills, G—Quantitative, SL—Scientific, VL—Visual, WCW—World Cultures, WE—Writing Experience
Environmental Science and Resource Sciences

Preparatory Subject Matter ............ 46-52
Biological Sciences 2A, 10, or 10V .... 4-5
Chemistry 2A .................................. 5
Plant Science 121, or Science & Society 18 ......... 3
Economics 1A, 1B ............................ 8
Animal Science 1, Atmospheric Science 60, Biological Sciences 101, Environmental Science & Management 100, Geology 1 or 134, Plant Sciences 12, or Wildlife, Fish, & Conservation Biology 11 .............. 3-5
Environmental Science & Policy 1 ...... 4
Mathematics 1A-168, 17A-178, or 21A-218 ......... 6-8
Physics 1A, 1B ................................. 6
Political Science 1 .......................... 4
Statistics 13 or 32 ........................... 3-4

Satisfaction of General Education requirement.

Depth Subject Matter ................. 47-51

(Students must take these units on a letter grade basis, and must attain an overall grade point average of 2.00 or higher in the Depth Subject Matter courses.)

Environmental Science & Policy 110, 160, 168A, 168B ........... 17
Environmental Science & Policy 161 .................................. 4
Environmental Science & Policy 178 .................................. 4
Environmental Science & Policy 179 .................................. 4
Select one course from: Agricultural & Resource Economics 106, Sociology 106, Statistics 100, 103, 105, or 108 ......... 4-5
Agricultural & Resource Economics 100A or Economics 100 ................................. 4
Environmental Science & Policy 176, 178, 179I or Environmental Science & Policy 175 .................... 4
Applied Biological Systems Technology 150 or Environmental Science & Policy 179J ................................. 2-4
Select one course from: Applied Biological Systems Technology 181N, 182, or Environmental Science & Management 185 or 186 ............................................... 4-5

Areas of Specialization (choose one) ................. 12-17

Students must select courses in the Areas of Specialization that have not been taken in the Depth Subject Matter.

City & Regional Planning

Environmental Science & Policy 171 and 172 ........................................ 8
Select one course from: Civil & Environmental Engineering 162, 165 or Environmental Science & Management 100, 151, 152 ........................................ 3-4
Select one course from: Art History 168, Community & Regional Development 149, 152, 156, or 171, Environmental Health 110, Environmental Science & Policy 173 or Political Science 100 ........................................ 2-5

Climate Change Policy

Environmental Science & Policy 165N ...... 3
Select one course from: Agriculture & Resource Economics 176, Economics 125, Environmental Science & Policy 163, 167, or 171 ........................................ 4
Select two courses from: Atmospheric Science 116, 133, or 160, Environmental Science & Management 100, 151, 152, 153 ........................................ 3-4
Conservation Management

Select two courses from: Environmental Science & Policy 166N, 169, or Hydrologic Science 150 ........................................ 6-8
Select one course from: Agricultural & Resource Economics 176, Economics 125, Environmental Science & Policy 163, 167, or 171 ........................................ 4
Select two courses from: Atmospheric Science 116, 133, or 160, Environmental Science & Management 100, 151, 152, 153 ........................................ 3-4

Water Management

Select two courses from: Environmental Science & Policy 166N, 169, or Hydrologic Science 150 ........................................ 6-8
Select two courses from: Environmental Science & Management 100, 121 ........................................ 4
Environmental Science & Policy 151, 155, Geology 134, Hydrologic Science 141, 143, Soil Science 118, Wildfire, Fish, & Conservation Biology 120, Biological Sciences 124, Environmental Science & Policy 116N, 124, 150C, or 152 ........................................ 6-8

Total Units for the Degree .......... 108-128

Major Adviser. J. Sanchirico (Environmental Science and Policy)

Minor Program Requirements:
The faculty for environmental policy analysis and planning offers the following minor. The Environmental Policy Analytical minor is a natural and social science students desiring basic training in policy analysis theory and methods.

Environmental Policy Analysis .......... 23-25
Preparation: Economics 1A, basic course in political science & Environmental Science & Policy 1 ........................................ 1
Environmental Science & Policy 160, 161, 168A ........................................ 13
Select two courses from: Environmental Science & Policy 163, 165N, 166N, 167, 168B, 169, 171, 172, or 179 ........................................ 6-8

Environmental and Resource Sciences

[College of Agricultural and Environmental Sciences]

This major was discontinued as of Fall 2008; see Environmental Science and Management, on page 298.

Environmental Science and Management

[College of Agricultural and Environmental Sciences]

The Major Program

The Environmental Science and Management (ESM) major is designed for students who are interested in solving environmental problems from an interdisciplinary perspective linking the natural and social sciences.

Students who choose this major will study the interaction of physical, biological, and social components of environmental problems. Students completing the program will understand the scientific basis for environmental decision making and the legal, economic, and political issues involved in management of the environment.

The Program. Courses in biology, chemistry, physics, economics, geology, and calculus form the lower-division preparatory foundation of the curriculum. These are then tied together with Environmental Science and Policy 1, “Environmental Analysis,” which provides an interdisciplinary analysis of several environmental problems. The upper-division core consists of foundation courses in physical, biological, and social sciences, as well as applied courses in environmental monitoring, GIS, impact reporting, and statistical analysis. In their junior year, students must choose a specialized track from the following six options:

(a) Ecology, Biodiversity, and Conservation
(b) Natural Resource Management
(c) Climate Change and Air Quality
(d) Geospatial Information Science
(e) Watershed Science
(f) Soils and Biogeochemistry

A capstone course is required for all seniors and serves to integrate the science, policy, management and biology aspects of the ESM major. All students gain practical experience through field courses and a required internship. Selected students may also pursue an honors thesis in their senior year.

The ESM major is jointly administered by the Department of Environmental Science and Policy (ESP) and Land, Air and Water Resources (LAWR). Any student in good standing is eligible to transfer to the major; to do so, please see the student affairs offices in 2134 Wickson Hall or in 1150 Plant and Environmental Sciences Building.

Careers. Graduates from this program are prepared to pursue careers as practicing environmental scientists, resource analysts and planners working for public agencies and private firms specializing in environmental quality, natural resources or ecological research. The major is also an excellent preparation for graduate or professional training in physical and/or biological environmental science graduate programs, as well as in environmental law, administration and environmental policy.

Quarter Offered: I-Fall, II-Winter, III-Spring, IV-Summer, 2015-2016 offering in parentheses.

Pre-Fall 2011 General Education (GE): AH=Arts and Humanities; SC=Science and Engineering; SS=Social Sciences; DV=Diverse Diversity; WR=Writing Experience

Fall 2011 and on Revised General Education (GE): AH=Arts and Humanities; SC=Science and Engineering; SS=Social Sciences; DV=Diverse Diversity; OL=Oral Skills; QA=Quantitative; SL=Scientific; VL=Visual; WC=World Cultures; WR=Writing Experience

Minor Adviser. J. Sanchirico (Environmental Science and Policy)