FOR Forestry and Environmental Studies

Program adviser: John Wargo, 124 KRN, 432-5123, john.wargo@yale.edu

The School of Forestry & Environmental Studies is primarily a graduate and professional program designed to train leaders to solve worldwide environmental problems and to provide new understanding of local and global environments through interdisciplinary research in the natural and social sciences. The School offers numerous courses to undergraduates in Environmental Studies, and undergraduates from any major can take courses in the School. Those undergraduates with significant interest should contact the School’s undergraduate program adviser to discuss a joint degree program that allows Yale College students to earn both a bachelor’s degree from Yale College and an M.E.M. degree from the School of Forestry & Environmental Studies in five years. For more information on the joint program, see the School’s Web site (http://environment.yale.edu/academics/degrees/five-year). Most graduate-level courses are open to qualified undergraduates. Listings and detailed descriptions of these courses are available in the bulletin of the School of Forestry & Environmental Studies, and most also appear in the online bulletin of the Graduate School of Arts and Sciences.

Information about the programs of the School of Forestry & Environmental Studies may be found on the School’s Web site (http://environment.yale.edu). Most lectures and symposia are open to undergraduates.

Courses

*F&ES 020a / EVST 020a, Sustainable Development in Haiti  Gordon Geballe
The principles and practice of sustainable development explored in the context of Haiti’s rich history and culture, as well as its current environmental and economic impoverishment. Enrollment limited to freshmen. Preregistration required; see under Freshman Seminar Program.  WR

*F&ES 221a / E&EB 230a / EVST 221a, Field Ecology  Linda Puth
A field-based introduction to ecological research, using experimental and descriptive approaches, comparative analysis, and modeling for field and small-group projects. Weekly field trips explore local lake, salt marsh, rocky intertidal, traprock ridge, and upland forest ecosystems. Includes one Saturday field trip and a three-day trip during the October recess. Concurrently with or after EEB 220 or with permission of instructor.  SC

F&ES 255b / EVST 255b / PLSC 215b, Environmental Politics and Law  John Wargo
Exploration of the politics, policy, and law associated with attempts to manage environmental quality and natural resources. Themes of democracy, liberty, power, property, equality, causation, and risk. Case histories include air quality, water quality and quantity, pesticides and toxic substances, land use, agriculture and food, parks and protected areas, and energy.  SO

*F&ES 260a  / EVST 260a, Structure, Function, and Development of Vascular Plants  Graeme Berlyn
Morphogenesis and adaptation of trees from seed formation and germination to maturity. Physiological and developmental processes associated with structural changes in response to environment are discussed from both a phylogenetic and an adaptive point of view.  SC

*F&ES 261a / EVST 261a / G&G 261a, Minerals and Human Health  Catherine Skinner and Ruth Blake
Study of the interrelationships between Earth materials and processes and personal and public health. The transposition from the environment of the chemical elements essential for life. After one year of college-level chemistry or with permission of instructor; GG 110 recommended.  SC

*F&ES 275b  / EVST 275b, Ecosystems Patterns and Processes  Peter Raymond and Mark Bradford
Study of ecosystem ecology and biogeochemistry. The use of concepts and data from these disciplines to predict and manage the impact of environmental changes on ecosystem services underlying the provisioning of resources such as food and clean water. Case studies of environmental changes include invasive species and changing climate. Undergraduate enrollment limited to 15.  SC  RP

*F&ES 277b / EVST 277b, Environmental Science and Policy  Mark Bradford
The synthesis of science, both for scientists and for policy makers. Usefulness of the two types of synthesis for developing scientific research and policy. Advancement of complementary practices between science and policy arenas. Concepts and data from ecological and biogeochemical disciplines are used to predict and manage the effects of environmental change on ecosystem services that underlie the provisioning of resources such as food and clean water.  SO

*F&ES 290b / EVST 290b, Geographic Information Systems  Charles Tomlin
A practical introduction to the nature and use of geographic information systems (GIS) in environmental science and management. Applied techniques for the acquisition, creation, storage, management, visualization, animation, transformation, analysis, and synthesis of cartographic data in digital form.

F&ES 315a / E&EB 115a, Conservation Biology  Jeffrey Powell and Linda Puth
An introduction to ecological and evolutionary principles underpinning efforts to conserve Earth’s biodiversity. Efforts to halt the rapid increase in disappearance of both plants and animals. Discussion of sociological and economic issues.  SC
F&ES 327a / ENVE 327a / G&G 327a, Atmospheric Chemistry  Nadine Unger
The chemical and physical processes that determine the composition of the atmosphere; implications for climate, ecosystems, and human welfare. Origin of the atmosphere; photolysis and reaction kinetics; atmospheric transport of trace species; stratospheric ozone chemistry; tropospheric hydrocarbon chemistry; oxidizing power, nitrogen, oxygen, sulfur, and carbon cycles; interactions between chemistry, climate, and biosphere; aerosols, smog, and acid rain. Prerequisites: CHEM 115 or 118, and MATH 120, or equivalents. ENAS 194 recommended.  Q8, SC

*F&ES 344b / EVST 344b, Aquatic Chemistry  Gaboury Benoit
A detailed examination of the principles governing chemical reactions in water. Emphasis on developing the ability to predict the aqueous chemistry of natural, engineered, and perturbed systems based on a knowledge of their biogeochemical setting. Calculation of quantitative solutions to chemical equilibria. Focus on inorganic chemistry. Topics include elementary thermodynamics, acid-base equilibria, alkalinity, speciation, solubility, mineral stability, redox chemistry, and surface complexation reactions.  SC

*F&ES 384a / ANTH 382a / EVST 345a, Environmental Anthropology  Michael Dove
History of the anthropological study of the environment: nature-culture dichotomy, ecology and social organization, methodological debates, politics of the environment, and knowing the environment.  SO