ESS CORE COURSES

ESS 101 / Introduction to Environmental Geology
[BNS] Humans interact with the Earth in many ways: we use natural resources, experience natural hazards, and design geoengineering techniques that modify natural processes. In this course, we consider how a diversity of human activities affects our environment, and how a diversity of natural processes affects humans. These topics will help us delve into the meaning of "sustainability" from the perspective of Earth scientists. We will use the modern and historic New Jersey landscape as a case study, but we will also discuss topics such as mountaintop removal in the Appalachians, earthquakes in Indonesia, and water usage in the Western US. Students will learn basic Earth science concepts, techniques for field scientists, methods of data analysis and presentation, and skills for effectively teasing apart complex environmental issues. Taught every fall semester.

BIOL 150 / Ecology and Evolution – Prof. Sara Webb (section 1) and Prof. Caroline Maier (section 2)
MWF 8:00-9:05 (section 1) or MWF 11:50-1:05 (section 2); plus lab 1:15-4:15 either MTW or Th
[BNS] [Q] [WM for biology majors and for ESS majors who earn exemption from ESS 215/Environmental Science] An exploration of evolutionary and ecological processes and consequences, with close examination of population dynamics, population genetics, principles of heredity, the evolution of adaptations, community interactions, ecosystems, and biodiversity. Laboratory includes field-based investigations of upland and wetland ecosystems, as well as simulations and laboratory experiments. Taught every fall semester.

ESS 210 / Environment, Society and Sustainability – Professor Lisa Jordan
[MW] 10:25-11:40; lab M 1:15-4:15
[BSS][BI] This course examines the relationship of human society to the natural environment from the perspective of sustainability, defined as meeting the needs of the present generation while preserving the ability of future generations to meet their needs. Using a multi-disciplinary approach, we will consider how values, paradigms, policies, technologies, and their intricate interactions determine our current unsustainable relationship with nature, and we will explore proposals for moving society in an environmentally sustainable direction. Taught every fall semester.

ESS 302 / Geographic Information Systems – Professor Lisa Jordan
[TTh] 9:00-10:15
[Q] [BI] - Core course required for ESS major; elective for biology students and ESS minor. Not open to first-year students. This course explores GIS (Geographic Information System) and related spatial analysis tools, which are used to elucidate the natural landscape and human modification of the earth's surface. Students will acquire cartographic, ArcGIS, and remote sensing skills through case studies and individual research investigations.

CHEM 150 or 151 / Principles of Chemistry 1 - Multiple instructors
[MW] 10:25-11:30 plus lab
[BNS][Q] An introduction to the fundamental principles of chemistry as a quantitative science, including inorganic reactions, properties of gases, liquids, and solids, thermochemistry, atomic theory, and nuclear chemistry. Appropriate for those with little or no background in chemistry. Taught every fall semester. Required for Environmental Science track; elective for other ESS majors

ESS ELECTIVE COURSES

ESS 281 / Environmental Writing and Ecocriticism - Prof. Summer Harrison
[TTh] 10:25-11:40
[BH][DUS][WI] This course will address questions such as: What is “the environment” or “environmental writing”? How does environmental writing both reflect and help to shape attitudes and values about the human relationship with our environment? What kinds of questions does ecocriticism raise and how do different ecritical strains approach literary, philosophical, and ethical questions in different ways? Ecocriticism, as Cheryl Glotfeldt describes it, is “the study of the relationship between literature and the physical environment.” However, because the physical environment is profoundly shaped and interpreted through social and cultural ideas about nature, race, gender, class, and location, this is not as simple or straightforward a relationship as it might initially seem. This course is designed to introduce ecocriticism alongside American environmental writing, and our readings will range widely from traditional nature writing to multi-ethnic U.S. fiction.
Quantitative three hours laboratory. Prerequisite: CHEM 350 and PHYS 160. Offered fall semester. Laboratory includes titrimetry, spectrophotometry, and electroanalytical methods. Meets: Three hours class.

An advanced course for biology majors interested in the biology of birds. Topics include: anatomy, physiology, distribution and systematics, with emphasis on avian ecology, behavior, and evolution. Through integrated laboratories, field trips, and discussions of the primary literature, students learn the identification of birds, functional morphology, and research techniques such as experimental design, behavioral observation, and statistical analyses. Two weekend field trips. Fulfills laboratory requirement for major. Prerequisite: BIOL+150 and BIOL+160. Offered fall semester in odd-numbered years.

A study of the principles of quantitative analytical chemistry, including error analysis and statistics, multiple equilibrium, electrochemistry, and introduction to spectroscopic methods, and an advanced study of acids and bases in aqueous solutions. Laboratory includes titrimetry, spectrophotometry, and electroanalytical methods. Meets: Three hours class, three hours laboratory. Prerequisite: CHEM 350 and PHYS 160. Offered fall semester. CLA-Breadth/Natural Science, CLA-Quantitative