For over 80 years, the Highlands Biological Station (HBS) has served as a center for research and education focusing on the biodiversity of the southern Appalachians, and has served as the mountain field site of the Institute for the Environment (IE) since 2001. Situated in some of the highest mountain country in the eastern United States, the IE Highlands Field Site offers a unique experience for students interested in biodiversity and conservation issues. The region is an ideal “natural laboratory” in which to learn about the historical and ecological processes that shape the biogeography of the rich southern Appalachian biota, and to explore the interplay of land use pressures and conservation concerns facing the region. HBS is a fully equipped scientific field station that also offers a summer field course program and research facilities for visiting scientists. Additionally, it serves as an important community resource with its Nature Center museum and extensive Botanical Garden of native plants.

IE students live in a restored home on the Station grounds in the town of Highlands, N.C. (elevation 4,118 feet). The campus provides a convenient center for course offerings and scientific investigations, with classroom and lab space, a computer lab and a library. Students spend the semester becoming intimately familiar with the issues of the Highlands region, much of which lies within the Nantahala National Forest. Coursework is focused on mountain biodiversity and biogeography, theoretical and applied methods (including GIS) for the study of mountain ecology and conservation, and the social, political and ecological history of land use in the southern Appalachians. The program takes advantage of its proximity to the Great Smoky Mountains National Park, the Qualla Boundary (Reservation of the Eastern Band of Cherokee Nation), the Blue Ridge Parkway and other areas of interest to experience firsthand the complexities of the environmental issues of the southern mountains.
THE COURSEWORK

Coursework is focused on the organisms and ecosystems of the southern Appalachian natural environment. ENST 261 Biogeography, Biodiversity and Conservation Biology (3 credit hours) and ENST 404 Mountain Biodiversity (3 credit hours) introduce students to facets of regional biodiversity within the framework of biogeography theory and principles. These courses take a broad approach to understanding the region’s spectacular biodiversity through a series of modular units that focus on different organismal groups. Lectures are complemented by field excursions with experienced entomologists, botanists, ornithologists, vertebrate biologists and geologists, helping students to become knowledgeable natural historians of the mountain forests. Finally, students investigate principles of conservation biology to put their knowledge of the local environment into a global context.

ENST 479 Landscape Analysis (3 credit hours) is an intensive study of GIS and other methods of landscape-level analysis (e.g., remote sensing, aerial photography), important tools for conservation studies. This course requires basic (introductory level) knowledge of GIS principles and applications.

The seminar ENST 204 Cultural History and Land Use (1 credit hour) is an excursion- and discussion-based course that traces the history of the southern Appalachians from the pre-contact era to the modern day, helping students to understand the complex series of events that has brought us to the current biodiversity crisis in the southern mountain region. Illuminating readings, guest speakers and field trips combine to paint the historical picture of the mountain landscape around us.

STUDENT RESEARCH AND THE CAPSTONE

In keeping with the applied and integrative approach of field site courses, students undertake independent research both in individual internships and in a group context through a Capstone project. In their internships, students are paired with mentors who help guide them within areas of individual interest. Students are involved in a variety of studies that range from land use planning and mapping to monitoring and documenting populations of plants and animals. Mentors are leaders in local governmental or environmental agencies such as the Town of Highlands, USDA Forest Service, land trusts and grassroots nonprofit organizations. In the Capstone project, students apply their skills and interests, working together to conduct research on a topic or problem of relevance to the Highlands region. For example, in 2006, students designed and implemented a project to study the forest ecology of one of the most significant remaining stands of old growth hemlock, currently threatened by the introduced hemlock woolly adelgid. The Capstone experience emphasizes working as a team to conduct and present research that addresses a significant conservation issue. The Capstone project, ENST 698, earns students three credit hours; Research, ENST 395, also earns students three credit hours.
About the IE

The UNC Institute for the Environment is the multidisciplinary program leading UNC-Chapel Hill's world-renowned environmental community in educating practitioners, researching and solving global challenges, and informing the public about critical issues. It focuses on four key areas: balancing energy production and environmental quality, protecting human health, supporting environmental policy makers, and developing sustainable community design principles and practices. The Highlands Field Site is part of a network of IE field sites that also includes locations in Morehead City, Manteo and Chapel Hill, North Carolina, as well as in Thailand and Cambridge, United Kingdom.

Faculty

The main course instructors are HBS Executive Director James T. Costa and Associate Director Anya E. Hinkle. Dr. Costa received his Ph.D. from the University of Georgia, and is H. F. and Katherine P. Robinson Professor of Biology at Western Carolina University. He has taught courses in genetics, biogeography, evolution and insect behavior. His research is focused on insect behavior and ecology; he is the author of *The Other Insect Societies*, published by Harvard University Press in 2006. Dr. Hinkle received her Ph.D. from the University of California, Berkeley in archaeoethnobotany of Polynesian flora. She is broadly trained in plant systematics, ecology and evolution. Guest instructors for the course are experts from regional colleges, universities and conservation agencies.

Student Research and the Capstone

In keeping with the applied and integrative approach of field site courses, students undertake independent research both in individual internships and in a group context through a Capstone project. In their internships, students are paired with mentors who help guide them within areas of individual interest. Students are involved in a variety of studies that range from land use planning and mapping to monitoring and documenting populations of plants and animals. Mentors are leaders in local governmental or environmental agencies such as the Town of Highlands, USDA Forest Service, land trusts and grassroots nonprofit organizations. In the Capstone project, students apply their skills and interests, working together to conduct research on a topic or problem of relevance to the Highlands region. For example, in 2006, students designed and implemented a project to study the forest ecology of one of the most significant remaining stands of old growth hemlock, currently threatened by the introduced hemlock woolly adelgid. The Capstone experience emphasizes working as a team to conduct and present research that addresses a significant conservation issue. The Capstone project, ENST 698, earns students three credit hours; Research, ENST 395, also earns students three credit hours.
This program is offered only in the fall academic semester, and gives preference to rising UNC-Chapel Hill seniors, but rising juniors will also be considered. Students should start planning with their academic advisor during their sophomore year if they wish to go to the Highlands Field Site. The semester at the Highlands Field Site follows the same schedule as the University during the fall semester. It is expected that students will complete all the research and writing for their internship and Capstone project during the time that they are at the Highlands Field Site.

A semester at the Highlands Field Site should cost students around $8,000. The UNC-Chapel Hill Study Abroad Office in the College of Arts and Sciences coordinates applications for attendance at the Highlands Field Site. The Study Abroad Office has set a February deadline for applications. Students participating in the Highlands Field Site fall semester program will receive 16 hours of academic credit.

The IE is a multidisciplinary initiative of UNC-Chapel Hill dedicated to addressing the factors that build an environmentally sustainable society.