

# DIVISION OF NATURAL AREAS

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Eastern Kentucky University owns three natural areas available for use by faculty, staff, and students across campus and for use by the public: Lilley Cornett Woods Appalachian Ecological Research Station (Letcher County), Maywoods Environmental and Educational Laboratory (Garrard and Rockcastle counties), and Taylor Fork Ecological Area (Madison County). As a unit, these Natural Areas function as a continuum of natural habitats found in the Commonwealth. They also serve as base stations for engaging regional communities. Our Natural Areas are used extensively by ECU, other universities, and elementary and secondary schools as outdoor classrooms. The Division is responsible for stewardship and management of the areas collectively for

1. place-based education, research, recreation, and regional outreach by ECU personnel and
2. providing infrastructure and expertise to the public for nature-based learning, research, recreation through K-12 programming, public events, and open hours activities such as hiking, fishing, and wildlife photography.

Lilley Cornett Woods, the oldest and most studied tract of old-growth forest in eastern Kentucky, is a Registered Natural Landmark (U.S. Department of Interior) and is operated as a nature preserve. Onsite facilities, including visitor center, research and learning laboratory, bunkhouse, manager's home, outdoor teaching pavilion, and maintenance building, offer an excellent off-campus venue for meetings, classes, and workshops. The property is 659 acres, and public use is limited to facilities and guided hikes in this unique forest.

Maywoods Environmental and Educational Laboratory is 1,700 forested-acres, with a 13-acre lake and is a wildlife refuge that provides protective habitat for native species. Onsite facilities, including a lodge with classroom and sleeping space, manager's home, outdoor classroom shelter, amphitheater, and maintenance building, also offer a venue for meetings, classes, and workshops. The site is open to the public for fishing, and hiking on any of the six self-guiding trails.

Taylor Fork Ecological Area is a 60-acre restoration site at the south end of ECU's main campus in Richmond. The Area's habitat is primarily old pastureland with fence row strips of trees and small patches of woods and canebrakes. Developed as a site for experiential learning, research, and restoration, Taylor Fork was conceived by students in ECU's Wildlife Management Program and includes the adjacent American Chestnut Orchard. The site currently has no facilities and is open to the public for hiking on the designated trails.

In addition to managing ECU's Natural Areas, the Division houses the Center for Environmental Education. The Center is involved in a variety of community and educational outreach programs through the University, public school districts, and the Kentucky University Partnership for Environmental Education, which includes all eight state universities and the Kentucky Community and Technical College System. The Division administers a certificate in environmental education that is available to students of all majors.

For further information about the use and availability of ECU's Natural Areas for research, education, leisure or educational programming,

please call (859) 622-1476 or visit the website, [www.naturalareas.eku.edu](http://www.naturalareas.eku.edu) (<http://www.naturalareas.eku.edu>).

## The Institute of Agriculture, Natural Resources, and the Environment

The Institute of Agriculture, Natural Resources, and the Environment is comprised of the Department of Agriculture, the Center for Environmental Education, and the Division of Natural Areas. Consistent with Eastern Kentucky University's long and successful history of managing agricultural and natural resources for the greater benefit of the campus and local community, the Institute will enhance opportunities for collaborative growth and program support in developing interdisciplinary programs and administering ECU's farms and natural areas for land stewardship and resource management. The Institute offers associate, baccalaureate, and university certificate programs.

The Institute also supports a broad range of interdisciplinary activities, programs, and opportunities for students, including (1) applied learning through internships in agriculture, natural resource management, and environmental education at ECU farms and natural areas; (2) courses, educational programming, and public engagement at our six field stations totaling over 3,200 acres: Meadowbrook Farm, Lilley Cornett Woods Appalachian Research Station, Maywoods Environmental and Educational Laboratory, Taylor Fork Ecological Area, Cardinal Lane Outdoor Laboratory, and Gladie Cultural and Environmental Learning Center; and (4) job-placement opportunities with state, federal, and non-governmental organizations; and (5) interdisciplinary university certificates that will enrich their degree programs.

## Certificate

- Environmental Education, University Certificate (<http://catalogs.eku.edu/undergraduate/science-technology-engineering-mathematics/natural-areas/environmental-education-certificate/>)
- Environmental Science, Departmental Certificate (<http://catalogs.eku.edu/undergraduate/science-technology-engineering-mathematics/natural-areas/environmental-science-certificate/>)

## Courses

### **GEO 100. Regions and Nations of the World. (3 Credits)**

I, II. Survey of the physical, cultural, and economic geography of the world's major regions, with an emphasis on regions undergoing change and currently of international concern. Gen. Ed. 5B (SBS).

### **GEO 110. Environmental Geography. (3 Credits)**

(3) A. Prerequisites: Freshman and Sophomore standing. A focus on ecological function and the physical and human dynamics contributing to environmental change across the globe and at various geographical scales. Environmental issues are examined through a geographical lens, and include clean air and water, energy systems, biodiversity, natural hazards, climate change, and food production. 2Lec/2Lab. Gen. Ed. E-4.

### **GEO 115. Hollywood Weather. (3 Credits)**

A. This non-technical introduction to atmospheric processes examines how meteorological events are portrayed in popular movies. Topics may include severe weather events, climate change, and weather's impact on human systems.

### **GEO 210. Introduction to Physical Geography. (3 Credits)**

I, II. Study of natural processes operating at the earth's surface with special emphasis on weather and climate and landforms as explanations for how and why physical and human phenomena vary from place to place. 2 Lec/2 Lab. Gen. Ed. IVB or VII (NS).

**GEO 302. Global Environmental Problems. (3 Credits)**

A. Course will be offered every odd Spring semester. Prerequisite: GEO 100, 110, or 210.; ENG 102, ENG 105 (B), or HON 102; MAT 105 or higher; or departmental approval. Examination of environmental problems and conservation strategies in the context of global change, with case studies from exemplary world regions, including rainforest, mountain, desert, and island biomes. Credit will not be awarded to students who have credit for GEO 302 or ENV 302.

**GEO 315. Meteorology. (3,4 Credits)**

I, II. Prerequisite: MAT 112 (A and B), 114, 122, 211 or 234. This course focuses on important phenomena and physical processes that occur in Earth's atmosphere, including atmospheric dynamics, radiation, stability, moisture, wind systems and severe storms.

**GEO 321. Urban Geography. (3 Credits)**

A. Prerequisites: GEO 100, 110, or 210; ENG 102 or ENG 105 (B) or HON 102. Study of city functions, patterns, and past and current problems confronting the city, including the problems of planning, zoning, community housing, shopping centers, and urban renewal.

**GEO 325. Environment Land Use Planning. (3 Credits)**

A. Prerequisites: Prerequisites: GEO 100, 110, or 210; ENG 102 or ENG 105 (B) or HON 102; ENG 102 or ENG 105 (B) or HON 102, and MAT 105. Examines how principles of landscape ecology, resource conservation, and environmental impact analysis are incorporated into land use decisions and public policy. Emphasizes practical application at the site and regional scales. Credit will not be awarded for both GEO 325 and GEO 325S, ENV 325 or ENV 325s.

**GEO 325S. Environmental Land Use Planning. (3 Credits)**

(3) A. Course will be offered every even Spring semester. Prerequisite: GEO 100, 110, or 210; ENG 102, 105(B), or HON 102; MAT 105 or higher, or departmental approval. Examines how principles of landscape ecology, resource conservation, and environmental impact analysis are incorporated into land use decisions and public policy. emphasizes practical application at the site and regional scale. Credit will only be awarded for GEO 325S or GEO 325 or ENV 325 or ENV 325S.

**GEO 351. Geoscience Data and Techniques. (3 Credits)**

Prerequisites: GEO 100, 110, 210, GLY 104, 107, 108 or 109; MAT 105 and above, STA 215 or 217. Introduction to geoscience data, quantitative and qualitative analysis, hypothesis testing, and appropriate representations of specific data types. Includes exposure to techniques used in geoscience research and applications, including mapping, GIS, GPS, field work, remote sensing, library and Internet research, and others. Practical experience focus. 2 Lec/2 Lab.

**GEO 353. Geographic Information Systems. (3 Credits)**

(3) I, II. Prerequisite: (One of the following): AGR 216, CSC 315, GEO 100, 110, 210, GLY 102, 107, or 108. Introduction to GIS principles, methods, operations, mapping, and applications. Topics include spatial data, databases, GIS analysis, models, site suitability, environmental and social applications, and more. Hands-on emphasis using ArcGIS. 2 Lec/2 Lab.

**GEO 450. Field Studies. (3 Credits)**

(3) A. Prerequisite: GEO 100, 110, or 210. Field techniques and applied case studies of geographic topics in local and regional environs.

**GEO 453. Advanced GIS. (3 Credits)**

I, II. Prerequisite: GEO 353 or departmental approval. Advanced concepts, operations, and applications of raster and vector GIS. Spatial analysis using scanning, imagery, GPS, global data sets, and derived data for natural and social applications. Use of standards, megadata, openGIS, and other advances. 2 Lec/2 Lab.

**GEO 455. GIS Cartography. (3 Credits)**

I. Prerequisite: (One of the following): GEO 100, 110, 210, GLY 102, 107, or 108. Principles of cartographic design for GIS applications. Hands-on emphasis using ArcGIS. 2 Lec/2 Lab.

**GEO 456. Remote Sensing. (3 Credits)**

A. Prerequisite: GEO 100, 110, 210, GLY 102, 107, or 108. Principles, data sources, acquisition, interpretation, analysis, and application of geographic imagery, including maps, air photos, shuttle photography, and satellite digital data. Hands-on computer GIS techniques. 2 Lec/2 Lab.

**GEO 458. Advanced Geographic Imagery. (3 Credits)**

II. Prerequisite: GEO 353 and GEO 456. Characteristics, interpretation, integration and applications of advanced geographic imagery, including remote sensing and GIS digital data. Attention on satellite and multispectral imagery, including image processing. Hands on emphasis. 2Lec/2Lab.

**GEO 501. Advanced Geography.\_\_\_\_. (3 Credits)**

A. Prerequisite: departmental approval. In-depth study of geoscience themes using geospatial techniques. May be retaken to a maximum of nine hours if subject matter differs each time.