

Lackawanna College

Conservation & Natural Resource Officer Certificate Program

16 undergraduate credits to be earned at LCEEC in the fall:

CNR Program Overview

* The Conservation and Natural Resource curriculum is designed to prepare students for entry level Natural Resource Ranger and Interpreter positions in Federal, State, County, and Municipal Park systems.

Curriculum objectives:

Students who have successfully completed this course should be able to:

1. Provide an overview of the natural resources of the Northeast United States;
2. Develop an understanding of how outdoor recreation and environmental education play a role in modern society;
3. Develop a sense for the natural process and the interrelationships of people and the environment;
4. Encourage environmental literacy by emphasizing the interrelationships between species and habitat;
5. Introduce the science of identifying animals and their habitat needs;
6. Introduce the science of identifying flora and fauna for recreational and habitat management purposes;
7. Present aspects of environmental protection, preservation and conservation;
8. Present concepts of managing renewable and nonrenewable resources.

* Each Government system may have agency specific requirements for employment in Law Enforcement Ranger positions i.e. minimum age 21, physical fitness standards, police training, etc.

Park Management & Environmental Interpretation

CNR - XXX- Description:

This course teaches students the basic principles of environmental and natural resource interpretation and management. Topics include environmental education, recreational programming, rules and regulations, interpretation, and public service. Course completion prepares the student for a career in the outdoors where there is a need to provide basic environmental education and programming in an outdoor recreational setting (both planned and impromptu). Three hours per week. (3 credits)

Objectives:

Students who have successfully completed this course should be able to:

1. Apply practical and identifiable methods to assess and manage the short and long term environmental impact of park and forest visitation in a recreational settings;
2. Utilize public-contact methods, techniques and skills to educate park/forest visitors;
3. Speak publicly in both group and one-on-one settings;
4. Develop and organize and present interpretive programs using learned methods and equipment;
5. Articulate the meaning, purpose, and consequence of recreational rules and regulations;
6. Understand and have the skills needed to obtain voluntary compliance of recreational rules and regulations;
7. Identify and articulate the distinct differences between the enforcement of recreational rules and regulations and regular law enforcement;
8. Understand and apply the skills necessary for stewards of public lands;
9. Describe key concepts and issues related to the philosophy, goals, and missions of agencies responsible for environmental recreation.

Texts:

Interpreting Our Heritage. Tilden, Freeman. (2010). *4th Edition.* The University of North Carolina Press.

PA Code, Title 17. *Conservation & Natural Resources*

Handouts

Wildlife Management

Bio - XXX - Description:

This course is designed to introduce students to the concept wildlife management, with special emphasis on Northeastern United States. Students will learn best management practices regarding wildlife management, starting with the fundamental needs of all living things and the dynamics of an ecosystem. The taxonomic classification of mammals will be investigated along with learning to identify a variety of wildlife species. Three hours per week. (3 credits)

Objectives:

Students who have successfully completed this course should be able to:

1. Learn best management practices regarding wildlife management, especially for Pennsylvania;
2. Learn what all living things need to survive;
3. Understand the dynamic balance required within ecosystems to withstand life;
4. Learn about mammals including their life cycles, habitats, and adaptations;
5. Be able to identify common mammals of Pennsylvania;
6. Learn how to use field guides;
7. Keep an appropriately detailed field journal.

Text:

Guide to the Mammals of Pennsylvania. Merritt, Joseph F., and Ruth Anne Matinko. Pittsburgh, Pa. ISBN: 978-0822953937

Dendrology & Wildflowers

Bio - XXX Description:

Introduction to dendrology and wildflowers with special emphasis on Northeastern United States. Covers common field identification techniques, field guide and dichotomous key use and basic principles of forest ecology and natural history. Three hours per week. (3 credits)

Objectives:

Students who have successfully completed this course should be able to:

1. Explain the internal anatomical structure and function of trees and other plants;
2. Use techniques in gathering, encoding, and recording field or research data;
3. Identify major tree, shrub, wildflower, and herbaceous species from living specimens as well as from samples of flowers, twigs, leaves, and fruits;
4. Use rules of scientific nomenclature to correctly present the common name and binomial;
5. Employ dichotomous and other plant keys to identify species;
6. State major and minor uses of each selected species;
7. Describe physical and biological features associated with the selected species and forest types;
8. Identify and describe select species of native, non-native, and invasive plant species;
9. Synthesize, write, and publicly present information about trees, wildflowers, and other plants.

Texts:

Familiar Trees of North America (Eastern Region), National Audubon Society

Familiar Flowers of North America (Eastern Region), National Audubon Society

Text (Optional):

Trees of Pennsylvania: A Complete Reference Guide,

Ann Fowler Rhoads and Timothy Block

The Plants of Pennsylvania: An Illustrated Manual, Ann Fowler Rhoads and Timothy Block

Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, Michael Dirr, Bonnie Dirr and Margaret Stephan

Field Ornithology

Bio - XXX - This course is designed to enable students to identify and classify birds with special emphasis on the birds of Northeast United States. Students will also gain an understanding of bird evolution, physiology, behavior, biodiversity, conservation, techniques of field study, and methods of collection and preservation. Three hours per week. (3 credits)

Objectives:

Students who have successfully completed this course should be able to:

1. Recognize the common birds of Northeast United States;
2. Learn the biology, habitats, and adaptations of birds;
3. Learn and practice a variety of field techniques used for studying birds including, banding, census methods, nest monitoring, and behavioral observations;
4. Learn the migratory patterns of birds;
5. Keep an appropriately detailed field journal.

Texts:

The Sibley Field Guide to Birds of Eastern North America. Publisher: Knopf; 1st edition (April 29, 2003) ISBN-978-0679451204

Stokes Beginner's Guide to Birds: Eastern Region. Publisher: Little, Brown and Company; 1st edition (October 1, 1996) ISBN-978-0316818117

Freshwater Ecosystems

Bio - XXX - This course is designed to introduce students to freshwater ecosystems with special emphasis on Northeastern United States. Students will learn the characteristics of different freshwater habitats, along with the interconnected abiotic and biotic factors within each. Students will learn to identify common reptiles, fish, amphibians, and macro-invertebrates that live around and within freshwater ecosystems. Three hours lecture and one hour lab per week. (4 credits)

Objectives:

Students who have successfully completed this course should be able to:

1. Learn the characteristics of different freshwater ecosystems;
2. Learn the abiotic factors within freshwater ecosystems;
3. Learn the biotic factors within freshwater ecosystems;
4. Be able to identify common reptiles, fish, amphibians, and macro-invertebrates that live around and within freshwater ecosystems;
5. Gain a deeper understanding of ecology and how all things within an ecosystem are dependent on one another;
6. Learn how to use field guides;
7. Keep an appropriately detailed field journal.

Texts:

Pennsylvania Amphibians & Reptiles. Larry Shaffer. Pennsylvania Fish & Boat Commission, Bureau of Boating and Education, Educational Media Section; 3rd Revised edition (1999) ISBN - 978-1930369009

Pennsylvania Fish. Linda Steiner. Pennsylvania Fish & Boat Commission (2000). ISBN - 978-1930369016

A Guide to Common Freshwater Invertebrates of North America. J. Reese Voshell, Jr. The McDonald & Woodward Publishing Company. Blacksburg, VA ISBN-978-0939923878

Swampwalker's Journal: A Wetland Year. David M. Carroll. Mariner Books; 1st Paperback Edition (June 14, 2001) ISBN - 978-0618127375