

Syllabus for Wildlife Leadership Academy summer field schools

Topics in Wildlife Science and Experiential Tools for the Science Classroom

Primary Instructor Information

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General Course Information

Course Title: BSC 500: Topics in Wildlife Science and Experiential Tools for the Science Classroom

Dates: PA Bucktails (June 12-17, 2023), PA Bass (June 19-24, 2023), PA Brookies (July 17-22, 2023), PA Gobblers (July 24-29, 2023), PA Ursids (July 31-August 5, 2023)

Act 48 Credit Hours: 40

Overview:

This is a 5-day intensive field course focusing on the biology, ecology, conservation and management of a particular wildlife species. The course begins with a half-day orientation session, and closes with a debrief session including faculty, staff, and participating educators. At our terrestrial species field schools, through lectures, field sessions and classroom activities, participating teachers learn about general ecology, forestry, plant identification and habitat management. At our fisheries field schools, through lectures, field sessions, and classroom activities, participating teachers learn about general ecology, stream/river ecology, macroinvertebrate identification, coldwater fisheries, the health of the Susquehanna River, and stream/river habitat management. The course also covers topics specific to each wildlife species including: anatomy and physiology, health and disease, nutrition, management, monitoring and research, and aging. Finally, the course offers a broad range of hands on-tools that teachers can take directly into the classroom including activities that teach biological concepts as well as peer-to-peer communication and cooperation (team-building). Participants apply their learning throughout the course while serving as Team Leaders for groups of high school students. The course is taught by leading experts from the Pennsylvania Game Commission, the Pennsylvania Fish and Boat Commission, the Pennsylvania State University, Kutztown University, National Deer Association, Susquehanna University, the U.S. Fish and Wildlife Service, the US Army Corps of Engineers and other organizations across Pennsylvania.

Course Outline

Day 1

Orientation

- Program Overview
- Role and responsibilities of Adult Team Leaders
- Facility Tour
- Emergency protocols
- Questions and Answers

Day 2

Lecture

- Species natural history
- Species health and disease
- Species nutrition
- Introduction to nature journaling
- Introduction to nature photography

Field Sessions

- Species anatomy and physiology through dissection of specimens
- Plant/Macro of the Day: ID and importance of species are featured by an expert

Classroom Tools

- Getting Acquainted: a tool for getting to know new people
- Words of Wisdom: a tool for engaging youth in public speaking & broadening perspective
- Macro of the Day: ID and importance of macroinvertebrates are featured by an expert
- Team Building: Have You Ever? (learn skills in communication, creating community, learning about others)

Day 3

Lecture

- General ecology
- Forest ecology or stream/river ecology
- Species Life Cycle and Behavior
- Species Management
- Species Populations and Carrying Capacity
- Species Monitoring and Research
- How to age the species through physical features

- Species Population Monitoring Techniques used in the field

Field Sessions

- Plant or macroinvertebrate identification and collection including:
 - How to use a dichotomous key to identify plants or macroinvertebrates
 - How to press plants and specifically create a herbarium sample **OR** Photographing and identifying macroinvertebrates
- Species Population Management exercise
- Mammal Population Monitoring Research Technique: Radio Telemetry Use **OR**
- Fisheries Population Monitoring Research Technique: electrofishing and sample collection demonstration
- Actual collections of plants important to mammal species created **OR** sample watershed illustration created
- Plant/Macro of the Day: ID and importance of species are featured by an expert

Classroom Tools

- Team Building Activity: learn about population cycles
- How to create a great PowerPoint: Staff Role Play – good vs poor presentation
- Ask the Experts (students ask instructors about education and career decisions)
- Team Building Activity: Centipede (learn about communication, working together as a team)

Day 4

Lecture

- Wildlife/Aquatic Habitat Basics
- Habitat Evaluation
- Terrestrial species: History of Hunting in Pennsylvania and Hunting's Role in Habitat Management

Field Sessions

- Field Technique: Wildlife/Aquatic Habitat Evaluation
- Plant/Macro of the Day: ID and importance of species are featured by an expert

Classroom Tools

- Team Building Activity: Coffee Can Stack (learn about problem solving, leading vs. following, communication)
- How to interact with media professionals: techniques, tips
- How to create a great Tri-fold: Do's and don'ts of creating a poster used for presentations

Day 5

Lectures

- Species' Predators
- Current Topics relevant to species
- Being a good field naturalist

Field Sessions

- Terrestrial species Field Technique: How to use GPS
- Field Naturalist Techniques
- Plant/Macro of the Day: ID and importance of species are featured by an expert

Classroom Tools

- Run for Your Life Activity (learn about predator/prey relationship)
- Team Building Activity: Helium Stick (learn about cooperation and communication)
- Town Hall Meeting Activity –an exercise that covers social/political topics in the natural resource field, and engages students in public speaking, understanding different points of view, and preparing and presenting talking points for a specific stakeholder group

Day 6

- Closing Ceremony
- Debrief Session

Course Materials

Required and/or suggested textbook and/or reading list:

- None – a reference guide on all material covered is provided

Required and optional supplies/materials for the entire course:

- field notebook (provided)

Course Goals

To provide participants with:

1. an understanding of ecological concepts including ecology, forestry, plant/macroinvertebrate identification and wildlife/fisheries habitat management through an intensive study of a particular wildlife species

2. the knowledge of how to bring these concepts into the science classroom through the use of active learning activities.

Learning Objectives

1. During daily quizzes and on the pre- and post-course test, participants will identify plant/macroinvertebrate species that are found within the species' habitat, and explain how these are used by the species throughout its life cycle.
2. Participants will practice research and monitoring techniques, using specific technology used by biologists in the field such as radio telemetry and/or GPS.
3. Participants will examine ecological concepts including ecology, forest ecology or stream/river ecology, habitat, predation, population dynamics and wildlife management through lectures, field sessions and classroom activities.
4. Participants will take a pre- and post-course exam, and by the end of the course will demonstrate increased knowledge of the wildlife/fisheries species, including its anatomy and physiology, nutrition, health and diseases, behavior, life cycle and aging, and natural history.
5. Participants will practice communication and leadership activities including team-building exercises, a mock town meeting, presentation development and delivery, and mock interviews.
6. Participants will record and demonstrate an understanding of course content and classroom applications in a daily field journal.
7. Participants will incorporate at least one course activities into a lesson plan for teaching an aspect of the curriculum material to a K-12 audience in a manner consistent with the current state academic standards.

Participant Responsibilities

Participants must send the lesson plan with the incorporated class activities to the directors as soon as completed.

Participants must also report on the results of performing the lesson plan with a class through a summary report after the lesson plan is completed, including the student results for assessment prompt and summarizing strategy (The point of this is to assess student learning from your lesson plan.) by no later than December 31st, following the summer of the field school they attend. See attached sample lesson plan for examples of assessment prompts and summarizing strategies.

Participating educators must attend the course in its entirety to be eligible to receive Act 48 credit. Absences in participation for any part of the course or failure to accomplish assignment will result in failure to complete the course. (If an absence occurs for any part of the course, students will be required to make up the course at later time when offered)