COURSE DESCRIPTION

Course Title: Wildlife Ecology

Course Number: 00369

Course Prerequisites: None

Course Description:
This course introduces the student to wildlife biology, ecology, and management. An emphasis will be
placed on the identification and classification of PA wildlife species. The basic principles of wildlife ecology,
conservation and issues involving wildlife, and society's impact on wildlife are also discussed.   Students will develop
skills in making informed decisions and taking constructive actions. Relevant lab activities will be incorporated
throughout, utilizing scientific inquiry and appropriate technology. Classroom studies are combined with field exercise.

Spring Semester Only

Suggested Grade Level: Grades 9-12

Length of Course: ☒ One Semester   ☐ Two Semesters   ☐ Other (Describe)

Units of Credit: .5 (Insert *None* if appropriate)

PDE *Certification and Staffing Policies and Guidelines* (CSPG) Required Teacher Certifications:
CSPG 32 - Biology

Certification verified by WCSD Human Resources Department: ☒ Yes   ☐ No

TEXTBOOK AND SUPPLEMENTAL MATERIALS

Continue using Board approved textbook? ☐ Yes   ☒ No (*If yes, then complete the information below.*)

Board Approved Textbooks, Software, Supplemental Materials:
Title:
Publisher:
ISBN #:
Copyright Date:
Date of WCSD Board Approval:
http://www.environthonpa.org/station/wildlife/

*Correlated with the Academic Standards for Environment and Ecology
The references are found on the Pennsylvania Envirothon website at *www.envirothonpa.org* under *Station Training*.

1. Pennsylvania Species, Ecosystems & Biodiversity
2. Helping Wildlife: Working with Nature booklet
3. Envirothon Skull Resource – compiled by the Pennsylvania Game Commission
4. Elk management, research, biology, and history – The following sections are required for the Envirothon competition.
   - Elk Biology and Natural History – pdf
   - Elk Frequently Asked Questions – pdf
   - Elk Management and Research – pdf
5. 2017 – 2018 Pennsylvania Digest of Hunting and Trapping – The following sections are required for the Envirothon competition.
   - Fluorescent Orange Requirements
   - Wildlife Classifications
   - State Game Lands Regulations
   - Mentored Youth Hunting Program and Youth Hunting Opportunities
   - Elk Hunting (the zones are not required)
6. Avian Influenza – pdf
7. ***Wildlife Profile 2018 – Students are required to study only the ANIMALS/BIRDS found in the 12 wildlife notes listed in the Wildlife Profile 2018. Envirothon students will be able to identify, describe the natural history, determine the wildlife biology, and evaluate habitat for the animals listed in the profile. Identification signs can include: a picture, a replica, decoy, fur, hair, feather, gnawing, rubbing, pellet, nest, scat, track, song or sound. Students should review the Pennsylvania Game Commission Wildlife Notes, sounds, songs, tracks, etc. which correlate to the animals designated in the **Wildlife Profile 2018**.
   - Eastern Coyote
   - Elk
   - Shrews
   - Cottontail Rabbit
   - Woodchucks
   - Squirrels
   - Swifts, Martins, Swallows
   - Tanager
   - Canada Goose
   - Ruffed Grouse
   - Sparrows and Towhees
   - Kingfisher

   *****Wildlife Profiles will be adjusted annually and may have additions or deletions to this list.*

1.
   1.

   - Mammal Sounds – The Cornell Lab of Ornithology Macaulay Library website
   - Birds Songs – Utilize the Identiflyer or visit The Cornell Lab of Ornithology All About Birds website
     - The nine Bird Songs that are required for the 2018 Envirothon include: 1) Scarlet Tanager, 2) Ruffed Grouse, 3) House Sparrow, 4) Song Sparrow, 5) Dark-eyed Junco, 6) Eastern Towhee, 7) Field Sparrow, 8) King Fisher, and 9) Canada Goose. All of these bird songs can be found on the Identiflyer, which is typically what the PA Game Commission uses during the wildlife test.

- Animal Tracks – Envirothon Animal Track sheet or visit iTrack wildlife (Animal tracks App). Additional resources to review: Pocket Guide to PA Animal Tracks by the Pennsylvania Trappers Association and Mammal Tracks and Scat: Life-Size Pocket Guide by Lynn Levine
- Beaks and Tongues (pdf) – Pennsylvania Songbirds – Chap. 1 Bird Biology, Lesson 6 – Used with permission from the PA DCNR Bureau of State Parks and Audubon PA
- Feet are Neat (pdf) – Pennsylvania Songbirds – Chap. 1 Bird Biology, Lesson 7 – Used with permission from the PA DCNR Bureau of State Parks and Audubon PA

8. Mowing and Wildlife: Managing Open Space for Wildlife Species – pdf
9. Food Plots – pdf

Pa Mammal Atlas
eBird
allaboutbirds.org

BOARD APPROVAL:

Date Written: 2/28/18

Date Approved: _____

Implementation Date: 2018-2019

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modification to instruction and assessment based on a student's Individual Education Plan (IEP) or Gifted Individual Education Plan (GIEP).

COURSE OVERVIEW
(*List the content to be taught*)

1. Knowledge of Birds and Mammals
   - Bird and mammal identification
   - Natural history of birds and mammals
   - Pennsylvania wildlife habitats and ecosystems
2. Understanding Wildlife Ecology
   - Managing the requirements of wildlife
   - Ecosystem dynamics:
     - Predator-prey relationships
     - Energy flow-food chain, food web, food pyramid
     - Succession
   - Adaptations
   - Population dynamics
   - Biodiversity
     - Levels of biodiversity
     - Values of biodiversity
3. Conservation and Management of Wildlife

- Pennsylvania Game Commission
- Hunting and trapping regulations
- Pennsylvania Game and Wildlife code
- Wildlife management
- Improving/managing habitat for wildlife

4. Issues Involving Wildlife and Society
   - Invasive species
   - Habitat loss and fragmentation
   - Endangered and threatened species
   - Managing wildlife and people
   - Reintroduction of native species
   - Wildlife diseases
   - Human impact and biodiversity

ANCHORS AND STANDARDS
Correlated with the Academic Standards and Assessment Anchors for Environment and Ecology

Envirothon Students will be able to:

1. **Knowledge of Wild Birds and Mammals**
   - Identify wildlife species using mounted specimens, skins/pelts, pictures, skulls, silhouettes, decoys, wings (waterfowl), scats, tracks, eggs, animal sounds, or other common signs. Wildlife signs may be real or reproduced.
   - Identify wildlife species or signs. Wildlife species or signs may be presented in any form as described above.
   - Identify general food habits (herbivore, omnivore, carnivore), habitats (terrestrial, aquatic, fossorial), and habits (diurnal, nocturnal) using skull morphology and/or teeth.
   - Answer questions concerning the natural history of wild bird and mammal species and identify birds and mammals if given natural history information.
   - Identify and be able to group animals that would be associated with specific ecosystems.
   - Evaluate a specific habitat and select or list species most likely to live there.
   - Describe various niches of birds and mammals in their ecosystems and be able to cite examples.

2. **Understanding Wildlife Ecology**
   - Know the meaning of "habitat," and be able to name the habitat requirements for wildlife and factors that affect wildlife suitability.
   - Know and understand basic ecological concepts and terminology. Define and explain basic ecological concepts and terminology, e.g., limiting factor, biological carrying capacity, cultural carrying capacity, territory, home range, population, community, succession, forest fragmentation, etc. *4.1 Ecology – 4.1.10.A
   - Understand the difference between ecosystem, community and population. Be able to explain how communities interact with their non-living surroundings to form ecosystems.
   - Understand wildlife population dynamics such as birth, mortality, age-structure, sex ratio, and mating systems. Understand the impact of limiting and decimating factors of common wildlife species on wildlife management. Define and explain terms associated with wildlife biology and wildlife populations, e.g., natality, mortality, precocial, altricial, crepuscular, nocturnal, delayed implantation, carnivore, niche, herbivore, insectivore, omnivore, producer, primary consumer, secondary consumer, etc. *4.1 Ecology – 4.1.10.A
   - Recognize that all living things must be well-adapted to their native environment in order to survive. Be able to identify, describe and explain the advantages of specific anatomical, physiological and/or behavioral adaptations of wildlife to their environment.
   - Know the meaning of the term "Biodiversity," and understand why biodiversity is important to people and wildlife. *4.1 Ecology – 4.1.12.A

- Understand the importance of the 3 levels of biodiversity: genetics, species and ecosystem or community, and understand the implications of biodiversity loss at each level. *4.1. Ecology – 4.1.10.A
- Describe and be able to model food chains, food webs, trophic levels. *4,1 Ecology – 4.1.10.C

3. **Conservation and Management of Wildlife**
   - Know the preferred habitat types and specific habitat requirements of common wildlife species. Understand how this knowledge helps us better protect both the land and the wildlife species that depend on it.
   - Understand the difference between biological and cultural carrying capacity, and be able to identify social and ecological considerations where human use of land conflicts with wildlife habitat needs.
   - Identify common wildlife management practices and methods that are being used to manage and improve wildlife habitat.
   - Understand the role of the Game Commission as the agency responsible for the protection, conservation, and management of wild birds and mammals of Pennsylvania. *4.1 Ecology – 4.1.12.A
   - Know that the Game Commission as the agency responsible for hunting and trapping regulations and upholding the Game and Wildlife code in the state of Pennsylvania.
   - Answer questions concerning hunting and trapping regulations – related to pages indicated in the Reference section.
   - Describe ways each person can help in the protection, conservation management and enhancement of wild bird and mammal populations. *4.1 Ecology – 4.1.12.A

4. **Issues Involving Wildlife and Society**
   - Understand how non-native (exotic), invasive species threaten our environment and the biodiversity of many wildlife species. Understand that non-native (exotic), invasive plants impact wildlife habitat and thus have a tremendous impact on native wildlife.
     - Learn about the complexities of decision-making in making land use decisions that affect wildlife, and understand that wildlife resources are under constant pressure caused by human population growth, environmental degradation, and habitat reduction.
     - Know that Wildlife species are subject to diseases resulting from exposure to microbes, parasites, toxins, and other biological and physical agents.
     - Understand the terminology and factors that affect threatened and endangered wildlife species. Know the meaning of extinct, extirpated, endangered, threatened, candidate species and reintroduction.
     - Identify the characteristics that many extinct and endangered species possess, and be able to identify many species wildlife that are endangered and threatened.
     - Understand the role of the Endangered Species Act in helping to conserve endangered and threatened species. Know the organizations and agencies responsible for listing and protecting endangered species on global, federal, state and provincial levels.
     - Describe major causes of habitat loss in Pennsylvania and how habitat loss affects wildlife.
     - Identify and explain the major causes of loss of biodiversity in our state and worldwide. Describe specific impacts of people on biodiversity – both negative and positive. *4.1 Ecology – 4.1.10.D
       - Negative impacts include but are not limited to:
         - Fragmentation of habitat due to roads and trails, buildings, etc.
         - Disturbance of wildlife in nesting seasons due to human activity and noise.
         - Destruction of habitat due to vehicle.
         - Death and/or injury of species by vehicle collision.
         - Trash interfering with wildlife health through food intake or causing injury to wildlife.
         - Pesticides or other changes to environment to make areas more comfortable.
       - Positive impacts include but are not limited to:
         - Enhancement of wildlife habitat in order to attract wildlife for viewing.
         - Increase knowledge of wildlife through visiting wildlife and natural areas.
         - Increase appreciation of wildlife and the importance of the natural world – leads to conservation.
         - Funding for wildlife management.

- Identify and describe examples of wildlife species and their adaptations that enable them to survive in an urban environment and possible issues for people. (for example raccoon, opossum, skunk, red fox, robin, house finch, house sparrow, little and big brown bats, white-tailed deer) *4.1. Ecology – 4.1.7.10A, D
- Understand the characteristics, symptoms, effects, and what measures are being taken to discover outbreaks and prevent spread of the Avian Influenza (required for the 2018 Envirothon) *4.1 – Ecology – 4.1.10.D

CC.3.5.9-12 Reading informational Text

CC.3.6.9-12 Writing

ASSESSMENT

Portfolio Assessment: ☐ Yes ☒ No

District-Wide Common Final Examination Required: ☒ Yes   ☐ No

Course Challenge Assessment (Describe)**:** Must pass the final examination with a minimum of an 80%.

WRITING TEAM: Warren County School District Teachers

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? ☒ Yes ☐ No
   Warren County School District Policy 9741 and 9744 state, "All classes in grades 9-12 shall have a final exam."

2. Does this course issue a mark/grade for the report card? ☒ Yes ☐ No

3. Does this course issue a Pass/Fail mark? ☐ Yes ☒ No

4. Is the course mark/grade part of the GPA calculation? ☒ Yes ☐ No

5. Is the course eligible for Honor Roll calculation? ☒ Yes ☐ No

6. What is the academic weight of the course?

   ☐ No weight/Non credit   ☒ Standard weight   ☐ Enhanced weight