

**RARITAN VALLEY COMMUNITY COLLEGE  
ACADEMIC COURSE OUTLINE**

**BIOL 249: ORNITHOLOGY**

**I. Basic Course Information**

- A. Course Number and Title: BIOL 249 – ORNITHOLOGY
- B. New or Modified Course: Modified
- C. Date of Proposal: Semester: Spring      Year: 2013
- D. Sponsoring Department: Science & Engineering
- E. Semester Credit Hours: 4
- F. Weekly Contact Hours: 6      Lecture: 3  
   Laboratory: 3
- G. Prerequisites: BIOL 102 – General Biology II or permission of instructor
- H. Laboratory Fees: Yes
- I. Name and Telephone Number or E-Mail Address of Department Chair:  
Dr. Margaret Czerw [mczerw@raritanval.edu](mailto:mczerw@raritanval.edu)

**II. Catalog Description**

Prerequisite: BIOL 102 – General Biology II or permission of instructor  
The biology of birds, focusing on the identification, biology and conservation of resident and migrant species of New Jersey. Students will be introduced to basic concepts in the taxonomy, anatomy, physiology, behavior, ecology and conservation of bird species in New Jersey and around the world. Labs consist of field trips to a broad range of habitats and natural areas throughout the state. Two weekend day trips required: avian evolution and diversity at the American Museum of Natural History (NYC), and wintering arctic waterfowl on the New Jersey coast. Offered in Spring and Summer semesters.

**III. Statement of Course Need**

- A. This course broadens our science offerings to include courses in the biological sciences for students interested in organismal biology, ecology, environmental science and/or veterinary studies. Students requiring laboratory science credits in either the Environmental Science A.S. or the Liberal Arts (Environmental Studies Option) A.A. programs of study will have a wider choice of electives, as will Biology A.S. students which require two 200-level electives for the major. This course will also complement

other existing courses with a strong field component, including Field Botany, General Ecology, and Environmental Field Studies. This course will also be of interest to Somerset and Hunterdon County residents with an interest in bird or nature study. Birding is ranked as the #2 recreational past-time in the U.S., and New Jersey is a globally-recognized hotspot for bird studies in North America, hosting the annual World Series of Birding, numerous Hawkwatch and other citizen science bird monitoring projects, and the Cape May Migratory Bird Center. This course will provide scientific depth and background to those interested in these activities. With a strong field study component, the course is likely to attract local members of The New Jersey Audubon Society, The Somerset Naturalists, and the Torrey Botanical Society, and will prepare students for internships or jobs with related organizations in the public, private, and nonprofit sector. Students taking this class in the past have obtained internships at NJ Audubon, Duke Farms, the Raptor Trust, NJ Conservation Foundation, Great Swamp National Wildlife Refuge, and the Mercer County Wildlife Center.

- B. This course has a weekly lab component. The labs are essential for providing first-hand opportunities for students to learn to identify birds in the wild by both sight and sound, to observe the habitat relations and seasonality of birds and the behaviors of birds in their natural settings, and to learn basic field methods of avian biology.
- C. This course is designed for transfer to academic degree programs at four-year institutions, specifically as a program elective in programs/majors such as Ecology, Biology, Conservation and/or Environmental Science. This course does **not** typically transfer as a specific General Education course or a specific program requirement. This course is similar to the Ornithology courses offered at the following institutions:
  - Drew University - Biol 162 Ornithology
  - Drake University – Biology 24 Field Ornithology
  - Rutgers University (New Brunswick) - 11:704:323 Ornithology
  - Kean University - BIO 3465 Biology and Ecology of Birds
  - Stockton College – BIOL 3130 Ornithology
  - East Stroudsburg University - BIOL 325 Ornithology

#### **IV. Place of Course in College Curriculum**

- A. Free Elective
- B. This course does not serve as a General Education course
- C. This course meets a program requirement for the Biology A.S., the Environmental Science A.S. and the Liberal Arts (Environmental Studies Option) A.A.
- D. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, [www.njtransfer.org](http://www.njtransfer.org); for all other colleges and universities, go to the individual websites.

#### **V. Outline of Course Content**

- A. Lecture Content**
  - 1. Introduction

2. Systematics, Species and Speciation
3. Feathers and Flight
4. Physiology
5. Brain and Senses
6. Annual Cycles: Migration and Navigation
7. Vocalizations and Social Behavior
8. Mates and Breeding Systems
9. Nesting, Eggs and Parental Care
10. Populations and Communities
11. Foraging Ecology
12. Conservation

**B. New Jersey Bird Identification:**

1. Winter Birds I (Songbirds)
2. Winter Birds II (Songbirds, Woodpeckers, Doves)
3. Raptors I (Hawks, Eagles, Osprey)
4. Raptors II (Owls, Falcons, Vultures)
5. Waterfowl I (Grebes, Loons, Sea Ducks)
6. Waterfowl II (Marsh Ducks, Pelicans, Cormorants)
7. Wading Birds (Hérons, Ibis, Cranes, Egrets)
8. Shorebirds and Gulls (Gulls, Plovers, Sandpipers, Woodcock, etc.)
9. Songbirds I (Flycatchers, Wrens, Mimic Thrushes, Warblers, Blackbirds)
10. Songbirds II (Warblers, Finches, Vireos, Creepers, etc.)
11. Songbirds III (Tanagers, Buntings, Warblers, Grosbeak, Towhee)
12. Songbirds IV (Warblers)
13. Miscellaneous (Fowl, Nightjars, Rails)
14. Miscellaneous (Hummingbirds, Swifts, Swallows, Kingfishers, Cuckoos)

**C. Bird Diversity of the World (Student Presentations):**

1. Ratites and Tinamous – Instructor
  - a. Ostrich, Emu, Rhea, Kiwi
2. Pelagic, Arctic, and Antarctic Birds
  - a. Penguins, Frigatebirds, Albatross, Auks
3. North American and Eurasian Birds
  - a. Buntings, Cardueline Finches, Loons, Old World Warblers
4. Central and South American Birds
  - a. Toucans, Hummingbirds, Tanagers, Typical Antbirds
  - b. Tyrant-flycatchers, Motmots, Jacamars, Puffbirds
  - c. Curassows, Trumpeters, Sunbittern/Seriema, Limpkin/Oilbird/Hoatzin
  - d. Woodcreepers, Manakins, Cotingas,
5. African Birds
  - a. Secretary Bird/Courol, Guineafowl, Roatelos, Turacos, Mousebirds,
  - b. Groundrollers/Rollers, Woodhoopoes, Sunbirds, Weavers, Sunbirds
6. SE Asian Birds
  - a. Leafbirds, Pheasants, Broadbills
  - b. Pittas, Babblers, Flowerpeckers

7. Australasian Birds (Australia, East Indies and Polynesia)
  - a. Birds-of-Paradise
  - b. Kagu, Cockatoos, Lories, Owlet-nightjars

#### **D. Lab Schedule (Tentative)**

1. American Museum of Natural History (NYC) - Avian Evolution and Diversity
2. Round Valley, Spruce Run Reservoir, Assicong Marsh - Inland Wintering Waterfowl
3. Brigantine, Forsythe NWR, Long Beach Island - Arctic Waterfowl
4. Merrill Creek Reservoir - Raptors
5. Raptor Trust/Great Swamp NWR – Raptors
6. Chimney Rock/Washington Valley Park – Wintering Songbirds
7. Duke Island Park – Early Spring Migrants, Wintering Songbirds
8. Cushetunk Mountain Nature Preserve – Habitat Relationships
9. Sourland Mountain Preserve – Habitat Relationships
10. Wickacheoke Creek/Bulls Island – Habitat Relationships
11. Hacklebarney State Park – Spring Migration

### **VI. General Education and Course Learning Outcomes**

#### **A. General Education Learning Outcomes:**

**At the completion of the course, students will be able to:**

1. apply scientific methods to identify bird species of the region and the world, and to interpret their behaviors and habitat relations (GE-NJ 3, \*),
2. use electronic and library resources to conduct research about bird diversity and biology and present this information to their peers (GE-NJ IL, 1),
3. evaluate ethical issues and situations related to the effects of human actions on birds and their environments (GE-NJ ER, \*)

(\* Embedded Critical Thinking)

#### **B. Course Learning Outcomes:**

**At the completion of the course, students will be able to:**

1. Explain the evolutionary origins birds and their relation to other taxonomic groups,
2. Describe the physical and behavioral features of birds, and explain these in the context of their environments,

### **VII. Modes of Teaching and Learning**

Given the goals and outcomes described above, the primary formats, modes, and methods for teaching and learning that may be used in the course are:

- A. lecture/discussion
- B. laboratory
- C. student oral presentations
- D. independent study

### **VIII. Papers, Examinations, and other Assessment Instruments**

Given the outcomes described above, the following assessment methods may be used:

- A. laboratory products
- B. research papers
- C. journals
- D. exams
- E. field quizzes

### **IX. Grade Determinants**

The following may be used to determine the final grade:

- A. research projects
- B. exams
- C. presentations
- D. book report
- E. service learning
- F. lab assignments

### **X. Texts and Materials**

The following types of course materials may be used:

- A. suggested textbook (Gill, Frank B. 2007. Ornithology. 3<sup>rd</sup> Edition. W. H. Freeman and Co.)
- B. primary sources (JSTOR, ScienceDirect Databases)
- C. journals
- D. film and video
- E. audio sources (Robert W. Lawson and Richard K. Walton. 2002. Birding by Ear: Eastern and Central North America. (Peterson Field Guides - Audio).
- F. web sources (All About Birds. 2009. Cornell Laboratory of Ornithology <http://www.allaboutbirds.org/NetCommunity/Page.aspx?pid=1189>; IBC: The Internet Bird Collection <http://ibc.lynxeds.com/>; Xeno-Canto: Bird Songs from Around the World. 2011. [www.xeno-canto.org](http://www.xeno-canto.org); BirdLife International – Conserving the World’s Birds. 2011. [www.birdlife.org](http://www.birdlife.org); Arkive – Images of Life on Earth. Wildscreen 2003-2010. [www.arkive.org](http://www.arkive.org))
- G. identification guide (Sibley, D.S. 2000. The Sibley Guide to Birds. National Audubon Society. Chanticleer Press, Alfred A. Knopf, NY.)

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

## **XI. Resources**

- A. Six pairs of binoculars for laboratory/student use
  - B. Spotting scope for laboratory/student use
  - C. CD recordings of bird songs
  - D. Library journal databases (JSTOR, ScienceDirect)
  - E. Library print collections
  - F. Van for field trips (not currently available)
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