

Conservation Biology in the Southern Appalachians

4 Credit Hours

July 20 – August 1, 2026

Highlands Biological Station

Instructor

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Course Description

Conservation biology is a multidisciplinary science focused on understanding and protecting Earth's biodiversity. The field offers both exhilaration—through the extraordinary diversity of life—and sobering reminders of global biodiversity loss. The southern Blue Ridge Mountains, a recognized biodiversity hotspot, provide an ideal setting to study these dynamics firsthand.

Students will encounter the region's exceptional species richness while examining the ecological, social, and management complexities that shape modern conservation efforts. Classroom lessons are paired with field-based instruction across nearby forests, coves, bogs, and bottomlands.

Topics include:

- Measurement and distribution of biodiversity
- Population modeling and extinction risk
- Climate change impacts
- Habitat loss, fragmentation & connectivity
- Overexploitation, invasive species, & wildlife disease
- Endangered species management
- In situ & ex situ conservation strategies
- The role of conservation organizations (local to global)

Students will also interact with conservation professionals and partner organizations throughout the course.

Purpose of the Course

This course is designed for upper-level undergraduates majoring in biology, environmental science, or related fields who seek a strong foundation in organismal and ecological biology. Familiarity with basic ecological and evolutionary principles is recommended.

The course is also open to lifelong learners and participants seeking CEUs or CECs.

Methods of Instruction

Students should anticipate 7–8 hours per day immersed in a combination of lectures, field excursions, and laboratory exercises. Schedule details may shift based on weather and guest collaborator availability.

Instructional components include:

- Illustrated lectures (PowerPoint, websites, news stories, films)
- Field site visits and case studies
- Computer-based modeling activities
- A biodiversity journal
- Written lab assignments

All course materials and submissions will be managed through the Canvas Learning Management System.

Attendance & Accommodations

Students requiring disability accommodations must notify both the instructor and HBS staff prior to the start of the course.

Academic Integrity

Cheating—including plagiarism or unauthorized use of artificial intelligence—will not be tolerated and may result in course failure. Students unsure whether an action violates academic integrity should consult the instructor.

Evaluation & Grading

| Component | Points |
|-----------------------------|--------|
| Course Journal | 50 |
| Lab Exercises (4 × 20 pts.) | 80 |
| Biodiversity List | 50 |
| Total | 180 |

Grading Scale

A = 92.5–100%

A– = 89.5–92.49%

B+ = 87.5–89.49%

B = 82.5–87.49%

B– = 79.5–82.49%

C+ = 77.5–79.49%

C = 72.5–77.49%

C– = 69.5–72.49%

D+ = 67.5–69.49%

D = 60–67.49%

F = < 60%

Text

Ehrlich, P.R. & N.S. Sodhi (2010). Conservation Biology for All. Oxford University Press.
Available as a free download on Canvas.

Lecture Topics

- Introduction to Conservation Biology
- History and guiding principles of the field
- Conservation organizations
- Biomes of the world
- Biodiversity & biodiversity hotspots
- Population biology & small-population problems
- Habitat destruction, fragmentation, & degradation
- Climate change impacts on biodiversity
- Overexploitation, invasive species, and wildlife diseases
- One Health
- Extinction case studies
- Endangered species management
- Wolf conservation

Field & Lab Activities (*subject to change*)

- Highlands Biological Station tour / Sunset Rock
- Great Smoky Mountains National Park & DLIA
- MAPS Bird Banding / Bumble Bee Survey
- Southern Environmental Law Center & Chattooga Conservancy – Brushy Mountain
- Highlands–Cashiers Land Trust – Brushy Face Preserve
- Chattooga Conservancy – Cane Restoration
- Coweeta Hydrologic Laboratory & Tennesse Bottomland Preserve
- Little Tennessee River – Fish Surveys

- Whiteside Mountain – Peregrine Falcon Conservation
 - Biodiversity measurement labs
 - Applied demography & population genetics
 - Ecosystem fragmentation demonstrations
 - Climate change modeling exercises
 - Dulany Bog exploration
 - Bumble Bee citizen-science surveys
 - Microplastics impacts on biodiversity
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Biodiversity List

Each student will maintain a catalog of species encountered during the course, including:

- Date & location
- Taxonomic classification
- Photographs or videos (when possible)

Species must be recorded only once. Students may use their preferred format (Excel, PowerPoint, PDF). Full guidelines are provided in Canvas.

Course Journal

Students will keep a daily journal documenting:

1. Activities completed
2. Lecture topics covered
3. Lab exercises performed
4. Field excursions (locations, collaborators, purpose, takeaways)

The format is flexible—notes or full paragraphs are acceptable. The journal is intended both as an evaluative component and as a reflective tool to reinforce course content.