SYLLABUS · SUMMER 2027 · HIGHLANDS BIOLOGICAL STATION

Conservation Biology

in the Southern Appalachians

WHEN	WHERE	INSTRUCTOR
July 19–30, 2027 Two weeks, Monday to Friday	Highlands Biological Station Highlands, North Carolina	Christopher B. Mowry, Ph.D. Professor of Biology, Berry College · cmowry@berry.edu

About the *course*

The multidisciplinary science of conservation biology is about understanding and protecting Earth's biodiversity, and it can be both an exhilarating yet sobering journey. The fascinating array of species we share this planet with is awe-inspiring, but the alarming rate at which we are losing many of them can be discouraging. There is no better place to see this play out than in the southern Blue Ridge Mountains, recognized as a global biodiversity hotspot.

Students will experience the high species richness of this area while getting a first-hand look at the complexities and competing interests that often occur in conservation biology. Lessons learned in the classroom will be applied in the nearby forests, coves, bogs, and bottomlands. Topics covered will include the distribution and measurement of biodiversity, population modeling, vulnerability to extinction, climate change, habitat loss and fragmentation, overexploitation and invasive species, endangered species management, as well as in situ and ex situ conservation efforts. Students will also be introduced to a number of local, national, and international conservation organizations and will gain valuable experience towards a career in conservation.

PURPOSE OF THE COURSE

This course is designed primarily for upper-level undergraduate biology and/or environmental science majors who have or seek a strong background in organismal/ecological biology. Ideally, students taking this course will already be well versed in basic ecological and evolutionary principles, but contact the instructor if you are currently at a different stage in your academic career. The course is also open to life-long learners and those seeking CEUs or CECs.

Methods of *instruction*

We will have lots to pack in over our two weeks together, so each day will be filled with both lecture topics and field/lab activities. Our daily schedule will be somewhat flexible based on weather and availability of guest speakers/collaborators, but you should plan on 7–8 hour days in class and/or the field. We will draw on the expertise of people who are affiliated with the sites we will visit and who have first-hand experience in the field of conservation biology.

Lectures will be augmented with the use of visual aids such as PowerPoint presentations, web sites, news stories, and films. Laboratory and field activities will consist of site visits and case studies, computer modeling

exercises, and the compilation of a biodiversity journal. Written laboratory assignments will be turned in and graded. All course materials will flow through the Canvas Learning Management System.

ACCOMMODATIONS

Students with disabilities who believe that they need accommodation should inform the instructor and HBS staff prior to the start of the course.

ACADEMIC INTEGRITY

Cheating of any kind, including plagiarism and the use of artificial intelligence (AI), will not be tolerated and may result in failure of the course. If you are ever unsure about what constitutes a violation of academic integrity, ask me.

Evaluation and *grading*

Letter grades for the course will be determined by a combination of individual test performance, overall class test performance, and quality of lab exercises. Points and final grading percentages include:

Course journal	50
Lab exercises (4 at 20 points each)	80
Biodiversity list	50
Total points	**180**

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	below 60%		

BIODIVERSITY LIST

Each student will compile a list of biodiversity encountered throughout the course. The date, location, and taxonomic classification of each species encountered should be catalogued and an image taken (photo or video) whenever possible. You can compile your species collection however you'd like (e.g., Excel, PowerPoint, PDF). Any species encountered needs to only be documented once. See Canvas (Assignments) for further details.

COURSE JOURNAL

You will keep a written journal throughout the duration of our two-week course:

1. What did we do each day?
2. What topics did we cover in class?
3. What lab exercises did we do?
4. What excursions did we take? Where did we go? Who did we meet with? What was the purpose of the excursion? What did you take away from it?

You do not necessarily need to write complete sentences or paragraphs, but you can if you want. The format, length and layout of your journal is up to you. This exercise is not just a requirement for your grade, but it will (hopefully!) also help to more fully clarify and embed the course content into your long-term memory bank. It will also help me to get a feel for what worked or didn't work in the course so I can make modifications in the future.

TEXT

Ehrlich, P.R. and N.S. Sodhi (2010). *Conservation Biology for All.* Oxford University Press, 360 pp. (Available for free download on Canvas.)

Topics and *field work*

The following topics will be covered in the course, although it is subject to change. We will cover as much as time allows!

LECTURE TOPICS

- What is Conservation Biology?
- The History of Conservation Biology
- Conservation Organizations
- Biomes of the World
- What is Biodiversity?
- Biodiversity Hotspots
- The Problems of Small Populations
- Habitat Destruction, Fragmentation, and Degradation
- Climate Change and Observed Impacts on Biodiversity
- Overexploitation and Invasive Species
- Wildlife Diseases and One Health
- Extinction
- Endangered Species Management
- Wolf Conservation

FIELD AND LAB ACTIVITIES (dates are subject to change)

- Highlands Biological Station tour / Sunset Rock
- Great Smoky Mountains National Park / Diversity of Life in America
- MAPS bird banding / bumble bee survey
- Southern Environmental Law Center and Chattooga Conservancy (Brushy Mountain)
- Highlands-Cashiers Land Trust (Brushy Face Preserve)
- Chattooga Conservancy (cane restoration)
- Coweeta Hydrologic Laboratory and Tessentee Bottomland Preserve
- Little Tennessee River (fish surveys)
- Whiteside Mountain (Peregrine Falcon conservation)
- Biodiversity measurement
- Estimating population characteristics / applied demography
- Population genetics
- Ecosystem fragmentation
- Climate change demonstrations
- Dulany Bog
- Bumble bee surveys (citizen science)
- Impacts of microplastics on biodiversity

Highlands Biological Station · 265 N. Sixth Street, Highlands, NC 28741 Schedule subject to change with weather and conditions.