



**Ceiba Foundation for Tropical Conservation**  
**TROPICAL CONSERVATION SEMESTER 2022**

**CONSERVATION BIOLOGY and GLOBAL SUSTAINABILITY**

January 17 – April 14

3 credits

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**Course webpage:** <https://canvas.instructure.com>

Course materials including lecture PDFs, assignment instructions, the syllabus and course schedule, and readings will be available on the Canvas site. Create a username and password the first time you access the page, and then edit your profile. Be sure the time zone is set to Bogotá, and please enable notifications for Announcements in your profile!

**Purpose of the course**

Conservation biology differs from other sciences in that it carries with it a value-driven goal of preserving species and ecosystems for the common good. The field takes the “hard sciences” into the practical realm and provides multidisciplinary approaches for understanding and addressing human-enhanced threats to biodiversity. The purpose of this course is to teach you how to apply theoretical concepts from biological, environmental, and social sciences to the assessment, protection, and management of biodiversity and natural and human-dominated ecosystems in both terrestrial and marine realms. The course also emphasizes first-hand exposure to tools and techniques for the science and practice of conservation biology.

**Course structure**

Conservation Biology bridges the science content courses (Terrestrial Ecology and Marine Biology) and prepares you for your conservation internship. The course consists of three modules, and is taught concurrently with terrestrial ecology and marine biology. This structure enables a direct and immediate application of scientific principles covered in those courses. Conservation Biology includes both sequential content (topics presented as a sequence of single lessons) and some distributed content (topics presented repeatedly in different contexts throughout the semester). A list of topics in each module is given below (see the class schedule for dates of specific topics).

**Module 1: Overarching Foundations**

1. Tropical Biodiversity: Origins, Patterns, Processes
2. The Value of Biodiversity (distributed)
3. Evolution, Extinction & Speciation
4. Tools and Techniques for Measuring and Monitoring Biodiversity (distributed)

**Module 2: Conservation in Terrestrial Ecosystems**

5. Threats to Biodiversity: Habitat Loss and Fragmentation
6. Threats to Biodiversity: Overexploitation, Invasive Species, and Climate Change
7. Guest lecture: Oil Development in the Amazon
8. Conservation Genetics and Special Problems of Small Populations
9. Solutions to the Biodiversity and Climate Crises
  - In-situ and Ex-situ Conservation Approaches
  - Agricultural Systems and Sustainable Land Use
  - Ecological Restoration

10. Socioeconomic Dimensions of Conservation
11. National and International Conservation Laws, Treaties, and Policies (distributed)

### Module 3: Conservation in Marine Ecosystems

12. Series on Marine Threats and Solutions
  - Fisheries and Aquaculture
  - Pollution and Eutrophication
  - Climate Change and Ocean Acidification
  - Threatened Marine Taxa (Cetaceans, Seabirds, Sea Turtles, Sharks)
13. Marine Protected Areas
14. Marine Restoration
15. Marine Conservation Organizations and Personal Action

### Learning Objectives

- Explain what comprises biodiversity and describe its distributed, how it is measured, and key hypotheses on its origin and maintenance.
- Apply concepts of evolution, speciation and extinction to conservation planning and management.
- Articulate the 5 major threats to biodiversity, and synergisms among them.
- Apply common techniques for conservation planning and management of species, habitats and ecosystems.
- Draw on scientific literature to investigate conservation problems and inform decision-making.
- Be able to articulate why conserving biodiversity is important and what actions individuals can take to make a difference.
- Write a grant proposal based on concise and convincing scientific arguments.
- Discuss the above learning objectives at multiple scales and in the context of species, populations, communities, ecosystems, and the entire planet.
- Identify conventions, treaties, organizations, legal mechanisms, and personal actions that address threats to biodiversity.

### Course Expectations & Grading

This course will be closely tied to the content of the concurrent terrestrial and marine ecology courses. It will consist of **lectures**, **discussions**, and several **assignments** throughout the semester. You will also learn to write a **grant proposal** to fund conservation research and/or action. Detailed instructions on these assignments, including how to submit them (online, on paper, etc) will be posted on Canvas. The assignments for this course include:

1. Conservation in the News
2. Measuring biodiversity and abundance: field activities & analyses
3. GPS and GIS mapping exercise
4. Ecuador's threatened species
5. Marine reserve plan
6. Grant proposal

### Assessments

Your Conservation Biology grade will be based on the components and weights shown in the table below. Your participation in this course will be assessed based on your attendance, engagement in class activities, contribution to discussions, and overall contribution to the success of the course. The quiz will include material from Module 1. The midterm will cover Module 2 and distributed content, and the final will cover Module 3 plus distributed content.

Grade Item	Weight
Participation (incl. Discussions)	10%
Assignments	10%
Grant proposal	20%
Quiz	10%
Written Exam I (Midterm, with Terrestrial Final)	25%
Written Exam II (Final, with Marine Final)	25%

**Grading Scale\*:** A=100-92%, AB=91.9-88.0%, B=87.9-82.0, BC=81.9-78.0, C=77.9-70.0, D<70.0

*\*Please note the USFQ online grade system only displays whole letter grades; your actual final grade will appear correctly on your transcript from UW-Madison.*

### **Norms for Classroom Discussion**

- Be present
- Assume positive intentions
- Engage respectfully
- Listen attentively
- Provide evidence
- Aim for equal participation
- Respect boundaries
- Be okay with silence
- Start & end on time

### **Statement on Diversity & Inclusion**

Diversity is a source of strength, creativity, and innovation at the Ceiba Foundation. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the program and broader community with whom we interact. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

### **Academic and Personal Conduct**

All students on the TCS program are expected to agree to a common Code of Conduct. As a visitor in Ecuador and a representative of your home country and the Ceiba Foundation, we expect you to act at all times in a safe, responsible, culturally sensitive, and respectful manner. As a UW-Madison affiliated and accredited program, Ceiba abides by the same rules governing academic conduct. All homework, quizzes, tests, and written assignments require your own thought and effort. Any student found to have submitted plagiarized material, or have otherwise obtained information falsely, will be subject to rules governing UW Academic Misconduct. Consequences of academic misconduct may range from failure on the assignment, failure in the course, or (in extreme cases) expulsion from the Tropical Conservation Semester program without refund. Most of all, we encourage all students to have fun, learn a lot, be curious, and enjoy the richness of the world around you!

### **Textbook**

Sher, A. and Primack, R. 2019. *An Introduction to Conservation Biology*. Sinauer Associates.

### **Additional Course Materials**

There will be readings and activities assigned throughout the course. Articles, handouts and other course materials (links, syllabi, videos, etc.) will be posted on the course website.

Course materials are copyrighted, or owned by Ceiba, and are for your use for educational purposes during this program only. Never share your login or password with people outside the program.