

BIOL 375 – Conservation Biology

Spring 2025, Mondays and Wednesdays 10:00 AM – 11:20 AM, FMH 310

Instructor: Dr. Michael Nelson

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Office: CKB 339A. Access is from inside the Biology Department main office (CKB337).

Office Hours: Tuesday/Thursday 11:30AM-12:30PM or by appointment

Course Description

Conservation biology is a developing and complex field. It draws upon the biological disciplines of population biology, taxonomy, ecology, genetics, and resource management as well as the fields of economics, ethics, and politics to document, understand, and protect the world's biodiversity. This course will give students an overview of this discipline including the scientific methods employed, the biological principles behind conservation techniques and strategies as well as the complexities involved in attempts to influence and implement conservation-oriented policies. This course will focus on problem-solving and communication in conservation biology and will involve extensive reading and discussion of scientific and popular literature on conservation issues, exploration of conservation case studies, writing assignments, and a collaborative applied conservation project.

Prerequisites

Biology 205 & 206: Foundations in Biology: Ecology & Evolution lecture & lab

Required Text

Anna Sher, 2022. An Introduction to Conservation Biology, Third Edition. Sinauer Associates, Inc.

Available as a softcover text (ISBN 978-0197564370)

Or an Ebook: <https://global.oup.com/ushe/product/an-introduction-to-conservation-biology->

9780197564370?cc=us&lang=en&ebcode=STUDENT25&period=6M&utm_source=D2S&utm_medium=Highspot&utm_campaign=FDOC

Additional Readings

Throughout the semester, I'll provide additional readings to supplement the course text and to serve as the basis for class discussions. These readings will be posted to the course Canvas site.

Grading

Grades will be a combination of exams, assignments, quizzes, and a class project according to the following weights:

Assignments	15%
Quizzes (pre-class)	5%
Quizzes (in-class)	10%
Midterm Exam 1	15%
Midterm Exam 2	15%
Final Exam	25%
Class Project	15%
Total	100%

Grading will be on a 100-point scale:

90 – 100: A | 80 – 90: B | 70 – 80: C | 60 – 70: D | Sub-60: F

The top and bottom 3 points in any letter grade will be + or -. E.g. 80, 81, 82 are a B -; 83, 84, 85, 86 are a B; 87, 88, 89 are a B+.

Course Policies

- All course materials are for students' own use only (no sharing or posting anywhere).
- I expect you to attend all the class meetings and participate in-class activities and discussions; you are responsible for all material covered in class.
- You must check Canvas regularly and ensure that you regularly check the email address associated with your Canvas profile.

- Make-up exams and quizzes will only be permitted with a dean's letter or with prior approval. If you have a serious reason for missing an exam, you must contact me before (whenever possible) the scheduled exam period.
- Late assignments will be accepted but penalized 20% per day late. I will not accept assignments that are more than 5 days late.
- There will generally be one short quiz per lecture (except for exam days) that will cover the readings and lecture material for that day. If you have done the reading and paid attention to the lecture, you will be prepared for the quiz. These quizzes cannot be made up, but the lowest four quiz grades will be dropped.

Learning Outcomes

- Identify and explain important threats to biological diversity as well as the variety of approaches to protecting biodiversity.
- Describe the ways that human activity contributes to threats to biodiversity, including climate change.
- Read critically and be able to form and articulate opinions on complex issues in conservation biology.
- Explain the interdisciplinary nature of the practice of applied conservation biology.
- Research and present a report (including written component) on an applied topic in conservation biology.

Academic Integrity

“Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: [NJIT Academic Integrity Code](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.”

Use of Generative Artificial Intelligence

Generative AI: This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.

Absence Policies

<https://biology.njit.edu/policy-absences>

Verified vs. unverified absences

The NJIT attendance policy expects that students will attend all lecture classes, laboratories and recitations. Absences are unverified until documentation has been submitted to, and approved by, the Office of the Dean of Students (ODoS), which should be done in a timely manner. The ODoS will then notify the instructor. Do not submit any documentation directly to your instructor.

There will be no make-ups or other accommodations for unverified absences.

For verified absences, the ODoS says this: “Please note that our office only verifies documentation, and it is at the discretion of your professor(s) or their department's policy to provide any accommodation.”

Short quizzes and other graded in-lecture activities

There will be no make-up assignments for activities such as short quizzes and active learning assignments that take place during lectures, whether or not the absence is verified.

Mid-terms and final exams

If a student has a verified absence from an exam, the instructor may, at their discretion, either a) administer a make-up exam, or b) provide an alternative as described in the course syllabus.

Tentative Course Schedule

Please note that this is the proposed schedule. I reserve the right to make changes to the schedule when needed; you will be notified of any changes. Readings should be completed before class on the date listed.

Date	Deck Number/Topic	Sher Reading
1/22/2025	Introduction and course information	
1/27/2025	1 - Defining Conservation Biology	Ch 1 (1.1 - 1.3)
1/29/2025	2 - Biodiversity: Species and Genetic Diversity	Ch 2 (2.1 - 2.2)
2/3/2025	3 - Ecosystem Diversity	Ch 2 (2.3)
2/5/2025	4 - Biodiversity Worldwide	Ch 2 (2.4)
2/10/2025	Case Study 1: Spider Biodiversity	
2/12/2025	5 - Valuing Biodiversity	Ch 3 (3.1 - 3.2)
2/17/2025	6 - Ethics and Economics	Ch 3 (3.3 - 3.5)
2/19/2025	7 - Human Pop. Growth, Habitat Destruction	Ch 4 (4.1 - 4.2)
2/24/2025	8 - Fragmentation and Degradation	Ch 4 (4.3 - 4.5)
2/26/2025	9 - Climate Change and Overexploitation	Ch 5 (5.1 - 5.2)
3/3/2025	10 - Invasive Species and Disease	Ch 5 (5.3 - 5.5)
3/5/2025	Discussion, midterm recap	
3/10/2025	Midterm 1	
3/13/2025	11 - Extinction	Ch 6 (6.1-6.3)
Spring Break		
3/24/2025	12 - Small Populations	Ch 6 (6.4)
3/26/2025	Case Study 2: Genetic Drift	
3/31/2025	13 - Conservation Categories and Legal Protection	Ch 7 (7.1 - 7.4)
4/2/2025	14: Establishing New Populations, Ex Situ Conservation Strategies, and Technology	Ch 8 (8.1 - 8.3)
4/7/2025	Case Study 3: Designing a Zoo	
4/9/2025	15 - Protected Areas: Establishment and Design	Ch 9 (9.1-9.2)
4/14/2025	16 - Protected Areas: management and Challenges	Ch 9 (9.3 - 9.6)
4/16/2025	Discussion, midterm recap	
4/21/2025	Midterm 2	
4/23/2025	17 - Conservation Outside Protected Areas	Ch 10 (10.1 - 10-5)
4/28/2025	18 - Restoration Ecology	Ch 11 (11.1 - 11.6)
4/30/2025	19 - Sustainable Development	Ch 12 (12.1 - 12.4)
5/5/2025	20 - Future	Ch 13 (13.1 - 13.2)