

Spring 2024

BIOL 375-002: Conservation Biology

Xiaonan Tai

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Tai, Xiaonan, "BIOL 375-002: Conservation Biology" (2024). *Biology Syllabi*. 135.
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BIOL375: CONSERVATION BIOLOGY,
Spring 2024, MON and WED 10:00am – 11:20am TIER108

Instructor: Dr. Xiaonan Tai

Email: xiaonan.tai@njit.edu

Course website: <http://canvas.njit.edu/>

Office: CKB 428D

Office Hours: Wed 11:20 – 12:20 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

Learning outcomes: Students are able to

- 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.

Required textbook: Sher, Anna A. and Richard B. Primack. 2020. *An Introduction to Conservation Biology*, 2nd ed. Sinauer Associates, Inc. Available as:

a) softcover text (ISBN: 9781605358970, retail \$99.95) or purchase from www.oup.com/us/he
<https://global.oup.com/academic/product/an-introduction-to-conservation-biology-9781605358970?q=9781605358970&cc=us&lang=en>

b) ebook (ISBN: 9781605358987, \$49.98 for 180-day digital rental)

<https://redshelf.com/search/?terms=9781605358987>

<https://www.vitalsource.com/products/an-introduction-to-conservation-biology-anna-a-sher-richard-b-v9781605358987?term=9781605358987>

Grading: Grades will be a combination of exams, class discussions/participations, quizzes and project based on weights in the following table. Grading will be on a 100 point scale.

90 – 100: A | 80 – 90: B | 70 – 80: C | 65 – 70: D | Sub-65: 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+.

Exams	30%
Assignments	15%
Class participation/ Discussion	20%
Quizzes	20%
Project	15%

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; 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 be permitted with a doctor's or 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 to notify me that you cannot take the exam.
- Late assignments will be accepted but penalized 20% per day late. I will not accept assignments that are more than 5 days late.

COVID-19 Safety Requirements: All persons physically present in any department facility or classroom shall comply fully with the NJIT COVID-19 safety policy at all times. Masks must be worn before entry to all department facilities and classrooms, and social distancing guidelines must be followed. Individuals who are unable to wear a face mask due to medical reasons should contact the Office of Disability Services or Human Resources. Students who enter a classroom without wearing a mask properly, or remove their mask, will be cautioned by the instructor. The same is true for students who disregard the seating order or guidelines for social distancing. Students with obvious symptoms of respiratory illness should not come to campus and will be asked to leave. Students who do not comply with a request by a department instructor to adjust their behavior, in accordance with the University Policy, will be subject to disciplinary actions. Instructors have the right to expel the student or terminate the class session at which any student fails to comply with the University Policy.

Academic Dishonesty: I have a zero tolerance policy for academic dishonesty, including plagiarism and cheating. 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:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>. 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.

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	Lecture topic	Readings before the class
1/17	Course syllabus and logistics	
1/22	Defining Conservation Biology	ICB Chapter 1 (pp. 2-21)
1/24	Biodiversity: Species Diversity & Genetic Diversity	ICB Chapter 2 (pp. 22- 34)
1/29	Ecosystem Diversity	ICB Chapter 2 (pp. 34-43)
1/31	Patterns of Biodiversity Worldwide	ICB Chapter 2 (pp. 43-53)
2/5	Case Study	
2/7	Valuing Biodiversity	ICB Chapter 3 (pp. 54-80)
2/12	paper discussion on biodiversity	ICB Chapter 3 (pp. 80-92)
2/14	Human Population Growth, Habitat Destruction	ICB Chapter 4 (pp. 95-112)
2/19	Fragmentation & Environmental Degradation	ICB Chapter 4 (pp. 112-127)
2/21	Debate	
2/26	Climate Change & Overexploitation	ICB Chapter 5 (pp. 129-149)
2/28	Invasive Species & Disease & project planning	ICB Chapter 5 (pp. 150-165)
3/4	MIDTERM EXAM 1	
3/6	Extinction & debate	
3/11	SPRING BREAK - NO CLASS	
3/13	SPRING BREAK - NO CLASS	
3/18	Problems of Small Populations & case study	ICB Chapter 6 (pp. 167-203)
3/20	Applied population biology	ICB Chapter 6 (pp. 182-203)
3/25	Conservation Categories, Legal Protection	ICB Chapter 7 (pp. 205-225)
3/27	Establishing New Populations, Ex Situ Conservation Strategies, Technology	ICB Chapter 7 (pp. 225-245)
4/1	Protected Areas: Establishment & Design	ICB Chapter 8 (pp. 247-277),
4/3	Guest lecture	ICB Chapter 9 (pp. 280-303)
4/8	Restoration Ecology	ICB Chapter 11 (pp. 349-373)
4/10	Conservation Outside Protected Areas; watch movie; problems?	ICB Chapter 10 (pp. 318-347)
4/15	Guest lecture	
4/17	Final Exam	
4/22	Project Presentations	
4/24	Project Presentations	
4/29	Project Presentations	