Introduction to Conservation Analysis
Spring 2022

Course Information

- Units: 4
- Class Hours: Monday & Wednesday, 3:30-4:45 pm
- Class Location: Global Center for Academic & Spiritual Life (GCASL) room 274, 238 Thompson Street, New York, NY, 10003 & ONLINE [See Brightspace for Zoom links]
- Calendar

Instructor Information

- Professor: Kimberly Carlson
  - Email: kimberly.carlson@nyu.edu
  - Office Address: Department of Environmental Studies, 285 Mercer Street, 9th floor
  - Office Hours: Variable. Please sign up here. If none of these times work, please email me.

Prerequisites

Environmental Systems Science (ENVST-UA 100) or Principles of Biology II (BIOL-UA 12)

Course Description (Bulletin)

Prerequisite: Environmental Systems Science (ENVST-UA 100) or Principles of Biology II (BIOL-UA 12). 4 points. Critically explores current and past biodiversity conservation problems and proposed or attempted solutions through a quantitative modeling lens. Students will apply several modeling techniques used to measure and address biodiversity loss to diverse species, ecosystems, global regions, spatial and temporal scales, and anthropogenic impacts.
Course Overview

Human activities including land appropriation, pollution, consumption, and species introductions have already led to severe declines and shifts in biodiversity across global regions and ecosystems. Further biodiversity loss is predicted under expected future climate change and increases in human consumption and waste. In response, governments and civil society groups have designed a wide range of policies and regulations designed to protect and enhance biodiversity. Researchers have developed models and approaches to track biodiversity over time and space, support conservation planning, and inform policy development, implementation, and evaluation. This 4-point course introduces students to such approaches as applied to a range of real-world biodiversity conservation issues. Through readings, lectures, and discussions, students will develop an understanding of several distinct problems in conservation biology, and the methodological approaches that have been used to address those problems.

The first few weeks of the course will examine biodiversity metrics and patterns across space and will ask students to model these patterns. The middle section of the class will cover major drivers and consequences of biodiversity loss at global to local scales, and students will learn how to assess such changes in biodiversity. Finally, in the last weeks of the course we will examine interventions designed to protect or enhance biodiversity, including assessment of their efficacy and standard approaches to develop such interventions.

The major assignment for the course is an individual student research project. In addition, students will read and comment on peer-reviewed scientific articles, complete modeling and analysis exercises, and review peer research paper drafts. Most Mondays will be dedicated to learning conservation concepts, while Wednesdays will introduce modeling and analysis approaches.

This course fulfills the Environmental Studies “Methods of Inquiry” requirement.

Learning Objectives

Through readings, assignments, and individual research projects, this course aims to provide an in-depth exploration of analytical approaches and models relevant to conservation biology. By the end of this course, all students should be able to:

- Describe the history and aims of conservation biology
- Explain the major contemporary anthropogenic drivers of biodiversity change
- Critically evaluate peer-reviewed scientific literature
- Select appropriate techniques for approaching a variety of real-world conservation problems
- Build and analyze models to make predictions about biodiversity and its conservation
- Develop and explore an original research question using a modeling approach
Course Materials

Reading

This course has no required textbook. Instead, readings will consist primarily of peer-reviewed research articles. These readings will be uploaded as PDFs to the class website at least one week ahead of time. In addition, lecture materials and assignments will be available on the course website. Conservation science (like all science) is subjective and has been built on a small subset of privileged voices. I have attempted to incorporate writing authored by diverse people, but many of the readings for this course were authored by white men, and thus the material is biased even though it is primarily of a scientific nature. I look forward to identifying and discussing these biases, and thinking about how to address them, throughout the course. Please contact the instructor or submit anonymous feedback with any suggestions to improve the nature of the course materials.

Reference Management

I highly encourage the use of reference management software such as Zotero, RefWorks, EndNote, or Mendeley.

Software

Students will be required to use R software for this class.

Polling

We use an in-class polling system (Poll Everywhere) throughout the semester for games and learning. To use the polling system, just go to https://pollev.com/kimberlycarl548 on your phone or laptop.

Assessment and Grading

Each assignment, including expected content, style, length, medium, and submission format will be fully explained to students before the due date. Assignments will be accompanied by rubrics used for grading. The following weights will be given to each of the course requirements in the determination of final grades.

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<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Points</th>
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<tbody>
<tr>
<td>Modeling and Analysis Exercises</td>
<td>A major component of this course is a series of modeling and analysis exercises. These will include qualitative</td>
<td>330</td>
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and quantitative approaches. Exercises will be introduced on Wednesday of each week and are due the following Wednesday. Plan to spend time each week to complete these exercises. Students may discuss their work with other students, but they must build their own model or conduct their own analysis.

| Journal Article Review | Each week, students are required to read peer-reviewed journal article(s) related to the topic of the week. These articles are closely related to the weekly topic and provide examples of a variety of analytical approaches in conservation. After reading the weekly journal article(s), students are required to complete short writing assignments related to the reading. These assignments are a means of learning the material, and do not need to be polished. | 120 |

| Research Project | Each student will develop a research project throughout the semester, including developing a research question, completing a literature review, building and running a model to answer the question, analyzing results from the model, and discussing the results. At the end of the semester, each student will present their research project to the class participants. | 500 |

| Peer Review | Students will review and provide constructive feedback on their peers' research papers near the end of the semester. | 50 |

| TOTAL | | 1000 |

**Deadlines**

Due dates are strictly imposed. Late work will be accepted with a 5% penalty for each day of delay. After ten days, and until the final day of classes in the semester, 50% will be awarded for the assignment. If a student has a personal emergency or health issue that prevents the student
from submitting the assignment on time, they should contact the instructor and discuss a revised submission timeline.

Revise and Resubmit

Students can improve a grade they received on an assignment by revising their work. To do so, they should send an email to the instructor within 7 days of receiving the assignment grade. The email should include the revised assignment WITH TRACK CHANGES ON so that the instructor can see how the revision compares to the original submission. The entire assignment will be re-graded potentially leading to an increase or decrease in the overall score.

Grading Scale

Final letter grades will be assigned according to the table below. There is no extra credit.

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<tr>
<th>Grade</th>
<th>Score Range</th>
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<tr>
<td>A-</td>
<td>94 &gt; x ≥ 89.45</td>
</tr>
<tr>
<td>B+</td>
<td>90 &gt; x ≥ 86.45</td>
</tr>
<tr>
<td>B</td>
<td>87 &gt; x ≥ 82.45</td>
</tr>
<tr>
<td>B-</td>
<td>83 &gt; x ≥ 79.45</td>
</tr>
<tr>
<td>C+</td>
<td>80 &gt; x ≥ 76.45</td>
</tr>
<tr>
<td>C</td>
<td>77 &gt; x ≥ 72.45</td>
</tr>
<tr>
<td>C-</td>
<td>73 &gt; x ≥ 69.45</td>
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<tr>
<td>D+</td>
<td>70 &gt; x ≥ 66.45</td>
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<tr>
<td>D</td>
<td>67 &gt; x ≥ 62.45</td>
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<tr>
<td>F</td>
<td>x &lt; 62.45</td>
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Course Website

All announcements, resources, and assignments will be delivered through the Brightspace site: brightspace.nyu.edu

Expectations from Participants

- Use personal devices in the classroom only for class-related activities.
- Exhibit professional conduct and attitude, including appreciation for all types of diversity, respect for the instructor, guest speakers, and fellow class participants, and acknowledgement and acceptance of differing ideas and opinions.
- Practice and honor the College of Arts & Science Honor Code and the University Student Conduct Policy.

Respect for Diversity
I intend that students from diverse backgrounds and perspectives are well served by this course, that your learning needs are addressed, and that the diversity that you bring to class is viewed as a resource, strength, and benefit. I aim to present materials and activities that respect diversity. I encourage your suggestions around course materials and approaches that will better serve this goal. I am continuously learning about diverse perspectives and identities. If something communicated in class (by anyone) made you feel uncomfortable, please reach out to me (either in person or electronically) or provide anonymous feedback. Also reach out to me and let me know ways to improve the effectiveness of the course for you or for other students or student groups.

Academic Integrity

Scholastic dishonesty of any form is not tolerated and may result in a failing grade and reporting the behavior to the College of Arts and Sciences. Scholastic dishonesty includes plagiarism, cheating, and fabricating or falsifying data, research procedures, or analysis. Obviously, bringing answers into an examination or copying all or part of a paper straight from a book, the Internet, or a fellow student is a violation of this principle. But there are other forms of cheating or plagiarizing which are just as serious — for example, presenting an oral report drawn without attribution from other sources (oral or written); writing a sentence or paragraph which, despite being in different words, expresses someone else's idea(s) without a reference to the source of the idea(s); or submitting essentially the same paper in two different courses (unless both instructors have given their permission in advance). Receiving or giving help on a take-home paper, examination, or quiz is also cheating, unless expressly permitted by the instructor (as in collaborative projects). If you are unsure on how to do proper citation, please see me. More detail can be found here. NYU offers academic support and tutoring at the University Learning Center, (212) 998-8085.

Student Accessibility

Academic accommodations are available for students with disabilities. If you have a disability, or think you have a disability, please visit the Moses Center for Students with Disabilities (CSD) website or call or email CSD at (212) 998-4980 or mosescsd@nyu.edu for information. Students who are requesting academic accommodations are strongly advised to reach out to the Moses Center as early as possible in the semester for assistance. If you have already been approved for accommodations through the Moses Center, please meet with the instructors so we can develop an implementation plan together.

Attendance

Students are expected to attend class, arrive on time, and stay the entire length of class. Please notify me in advance if you cannot attend due to travel or other planned reasons; in the case of unexpected illness or emergency please send word as soon as possible.
Religious Holidays

NYU's Calendar Policy on Religious Holidays states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. Please notify me in advance of religious holidays that might coincide with exams to schedule mutually acceptable alternatives.