

## Species Distribution in a Changing World (ENS 373)

**Professor:** Dr. Amanda Chunco  
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**Lecture Time:** M-F 8:30 – 11:30

**Credits:** 4  
**Office Hours:** M-F 11:30 – 12:30  
**Office Location:** McMichael 003D  
**Lecture Location:** McMichael 006

**Course Description:** Humans are living in a period that is commonly thought of as a 6<sup>th</sup> mass extinction. Biodiversity is declining at the fastest rate in recorded human history, and the consequences of this loss will be profound, both for the planet and for the people who live here. It is impossible to understand, and correct, biodiversity loss without understanding the spatial context in which declines and extinctions occur. This course will focus on conservation through a spatial lens. In particular, biogeography, a way of understanding the relationship between geographic place and diversity, will serve as a major theme throughout this course.

**Course Goals and Objectives:** I have structured this course around several unifying course goals listed below. I have chosen these specific goals to provide you with the theoretical foundation and skillset that will prepare you for additional coursework or a career in conservation, while focusing on the core ideas that everyone deeply concerned with conservation should be familiar with.

- Apply the theoretical principles of biogeography to conservation problems
- Interpret the mathematical equations, graphs, and figures that underlie biogeography
- Use the scientific literature to inform decision making
- Describe the historical and ecological factors which influence the pattern of life on Earth
- Apply the scientific method and philosophy of hypothesis testing to biogeographic problems
- Evaluate modern conservation strategies using biogeographic theory

**Prerequisites:** Students must have taken either ENS 111/113, BIO 112/114, or instructor consent.

**Readings:**

- 1) Quammen, David. Song of the Dodo: Island Biogeography in an Age of Extinction. 1997. Scibner.
- 2) SimUText – Biogeography; this is an on-line textbook chapter
- 3) Select primary research papers will be posted on Moodle.

### **Course Policies:**

*Classroom Time:* In general, your time in class will be spent in a mix of traditional lectures, small group work, and class discussions. Successful group work requires professional and courteous behavior at all times, so I expect everyone to respect the contribution of each person in this class.

*Expectations:* Because we will spend significant class time in discussions and problem solving in small groups, your attendance and preparation is both essential for your success and that of your group. Given this interactive class format, please arrive to class on-time and with your phones turned off. You may use a laptop for taking notes, but please refrain from using your computer for non-class tasks during class time. This type of activity can be very distracting to your classmates and to me. While attendance is critical, illnesses and other events do come up and you may need to miss class. If that happens, please stop by my office as soon as possible and I will be happy to help work with you.

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*Academic Honesty and the Elon Honor Pledge:* Elon's honor pledge calls for a commitment to Elon's shared values of Honesty, Integrity, Respect and Responsibility. To be clear about what constitutes violations of these values; students should be familiar with code of conduct policies in the student handbook, including violations outlined at <http://www.elon.edu/e-web/students/handbook/violations/default.xhtml>. Violations specifically covered by academic honor code policies include: plagiarism, cheating, lying, stealing and the facilitation of another's dishonesty.

I expect each student in this course to abide by the highest standards of academic integrity. I have been impressed with the integrity of the students I have had at Elon, but I am also aware the academic honor violations have been increasing and I am deeply concerned with maintaining high standards of academic integrity. Any violation of the honor code will go through the formal judicial process and may result in a final course grade of Honor Code F, per Elon policy. Multiple violations will normally result in a student's temporary suspension from the University. The intent of this class is to contribute to your development as a marketable professional, and integrity is a critical part of this development.

*Students with Disabilities:* If you have a documented disability and need special accommodations of any nature, I will work with you and Disability Services (Duke Building, Room 108, 278-6500) to provide reasonable accommodations so that you have a fair opportunity to perform successfully in this class.

*Religious Holiday:* In recognition that observance of recognized religious holidays may affect students' classroom attendance and the submission of graded work, Elon has established procedures to be followed by students for notifying their instructors of an absence necessitated by the observance. In accordance with the policy, students who miss class to observe a religious holiday are required to discuss with their instructor when and how any missed assignments will be made up. Absence from class due to observance of a religious holiday is excused according to University policy.

### Evaluation

*Grading:* Your final grade will be based on a combination of assignments as follows:

Lecture:	500 pts total, broken down below	
	Mini-Exams (3)	90 points each
	Biogeography Research Project	100 points
	Paper Summaries and Discussions	50
	In-class Activities and Final	60 points
	Professionalism	20 points

Grades will be assigned based on the number of points earned and will be assigned as follows:

A	465-500	A-	450-464		
B+	435-449	B	415-434	B-	400-414
C+	385-399	C	365-384	C-	350-364
D+	335-349	D	315-334	D-	300-314
E	0-299 pts				

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*Mini-exams:* The study of species distributions draws on different fields, including ecology, evolution, climatology, paleontology, and many others. Because the course reflects the strong interdisciplinary nature of this field, and the course is highly integrative, each exam will be cumulative in the sense that you will build new knowledge on the foundation established earlier in the semester.

*Biogeography Project:* There are a lot of exciting and important questions that are being addressed in modern biogeographic research. This project is an opportunity for you to delve deeply, either individually or with a small group, into a project of your choosing. I know that this class is drawing from a student population with diverse interests, so you have three general forms that this project can take: an empirical study, a literature review, or a popular science article. If you have other ideas, feel free to suggest them – I want this project to reflect your goals and interests, so if you can convince me that another, equally in-depth format is a better learning experience for you, I am happy to consider it.

*Paper Summaries and Discussion* We will read a variety of seminal articles on biogeography from the foundation of the field through today. This literature can be quite technical, so I expect you to spend significant time on each article. For each paper, I expect you to write a short summary (~200-300 words) highlighting the key points of the article and ending with at least two questions. You can either email this to me and to your group members before class, or bring a copy for each person in the group to class. We will use class time for small group discussion about the paper, and your questions will form the backbone of the discussion, so be thoughtful in your writings. For questions, I am looking for thought provoking ideas that you can discuss in a group rather than technical or definitional questions. I am looking for evidence that you thought about the article rather, so focus on the ideas in your writings rather than grammar/syntax. These will be graded check, check plus or minus, so be creative!

*In-class activities:* We will also have several in-class activities to give you experience mastering concepts presented in class. Most of these will be graded complete/incomplete, so they should be an easy opportunity to earn points if you show up and are engaged in the task at hand.

*Professionalism:* Acting with a high level of professionalism will make the class more valuable for everyone in class. Show up, on time, and prepared to take part in the day's activities. Most importantly, I expect you to treat every person in this class with the highest degree of respect. As part of respecting others, I expect computer use to be completely focused on the task at hand – internet surfing, checking email, etc. is immensely distracting to those around you, and I actually notice when you are distracted. If you have repeated infractions, I will ask you to leave the laptop/phone at home.

*Extra Credit Policy:* There will be no extra credit in this class. Please don't ask! My philosophy is that you should spend your valuable time succeeding at the primary objectives for the course. If you have not completed them, you should not be spending time on additional work. If you have completed them, your grade should not be in need of a boost.