

**Intro to Ecology and Evolution**  
**11:216:101 ( 3 credits)**  
**Spring 2023**

**CONTACT INFORMATION**

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Dept: Ecology, Evolution & Natural Resources

**COURSE WEBSITE, RESOURCES AND MATERIALS**

- CANVAS

**COURSE DESCRIPTION**

This course provides the basic foundations for understanding evolutionary and ecological processes. The course covers natural selection, basic evolutionary theories, human evolution, population and community ecology, biodiversity, biogeochemical cycling, global climate, landscape ecology, global ecology and conservation biology. All examples will come from scientific papers written in the past 5 years. In addition, topics like global climate change, CRISPR, GMOs, recent discovery and analysis of human migration and evolution will be discussed in the context of ecology and evolution and its effect on our society.

**CORE CURRICULUM LEARNING GOALS**

**Natural Sciences [NS-1 & NS-2]**

Understand and apply basic principles and concepts in the physical or biological sciences.  
Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in scientific analysis.

**COURSE LEARNING GOALS**

- Goal A: Explain the theory of natural selection and its application in animal and plant species.
- Goal B: Explain and understand the difference between population, community, landscape and global ecology and their relation to our human society.
- Goal C: Evaluate and analyze the current scientific research in ecology and evolution in the context our global society, species extinction and impacts across animal and plant species.
- Goal D: Critically evaluate and understand the role of current evolutionary and ecological research in context to past and current effects on society
- Goal E: Communicate written answers/ideas appropriate to ecology and evolution.

## DEPT. EENR LEARNING GOALS

- Goal 1: Explain basic population, community ecology, and ecosystem-level concepts.
- Goal 2: Describe the evolutionary origins, processes and patterns over geologic time.
- Goal 6: Think critically and solve problems using evidence-based reasoning.
- Goal 7: Communicate effectively orally and through written text and graphics.

## ASSESSMENT:

**Lecture Grading:**                      **pts.**

	<b>Points</b>
In-lecture quizzes (11-12)	<b>~100*</b>
Exam 1	<b>120</b>
Exam 2	<b>120</b>
Exam 3	<b>120</b>
<b>Total</b>	<b>460**</b>

**\*The number of quiz points are subject to change.**

**\*\*Total points for course is subject to change.**

- 1) B+ and C+ range is entirely up to my discretion at the end of the semester.
  - 2) There is **NO extra credit!**
  - 3) All exams are **MANDATORY**, missing any exam is an automatic **FAIL** in the course.
- In-lecture quizzes: At the beginning of Thursday class periods (8:30 AM), all short answer questions. Once quiz is completed, I will give the answer. There is **NO** late quiz submission.
  - Exams: All exams (2 midterms and non-cumulative final) are multiple-choice exams on paper (not on Canvas).

## ACADEMIC INTEGRITY

The university's policy on Academic Integrity

<http://nbacademicintegrity.rutgers.edu/home/academic-integrity-policy/>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated, and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

### **Cheating and Plagiarism**

(From Spring 2010 Andy Egan 01:730:252 Eating Right): “Cheating on tests or plagiarizing materials in your papers deprives you of the educational benefits of preparing these materials appropriately. It is personally dishonest to cheat on a test or to hand in a paper based on unacknowledged words or ideas that someone else originated. It is also unfair, since it gives you an undeserved advantage over your fellow students who are graded on the basis of their own work. In this class we will take cheating very seriously”.

**Rutgers Dean of Students** <http://deanofstudents.rutgers.edu/>

The University does recognize that temporary conditions and injuries can be problematic and may adversely affect a student's ability to fully participate in class.

- **Absences or making up work:** <https://temporaryconditions.rutgers.edu/>

The Dean of Students Office at Rutgers University-New Brunswick provides solutions, services, and support to help students navigate Rutgers University. By focusing on students' educational, social, and personal development, staff in the Office promote academic success and student retention. The Office serves as a student support network by providing advocacy, problem resolution, and critical incident intervention for those times when additional assistance is needed.

- **Self-Reporting Absences**: For absences in class or labs less than a week that are not confidential in nature, students need to inform faculty directly by using the Absence Reporting System (ARS) (<https://sims.rutgers.edu/ssra/>).

- **Longer Periods of Absence**: If you anticipate missing more than one week of classes for serious illness, confidential, or sensitive personal reasons, you should also consult with a New Brunswick Dean of Students who will help to verify your extended absences from classes.

- **Absences due to illnesses**: If your absence is due to illness, visit New Brunswick Health Services for information about campus health services, including information about: how to make an appointment, self-care advice for colds/flu, mental health and counseling options.

### **Counseling, ADAP & Psychiatric Services (CAPS)**

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

### **Violence Prevention & Victim Assistance (VPVA)**

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932- 1181.

### **ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

**Disability Services:** (848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a

disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

### **Scarlet Listeners**

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive.

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**Lecture Schedule Spring 2023**

<b>Date</b>	<b>Lec</b>	<b>TOPICS*</b>	<b>Assessment*</b>
1/19	1	Introduction	
1/23	2	Evolution – Charles Darwin & Alfred Wallace	
1/26	3	Natural Selection I	
1/30	4	Natural Selection II	
2/2	5	Evolutionary Mechanisms I	Quiz 1 (Lec 2-3)
2/6	6	Evolutionary Mechanisms II	
2/9	7	Experimental Evolution	Quiz 2 (Lec 4-5)
2/13	8	Evolution of Plant Domestication	
2/16	9	Evolution of Homo sapiens	Quiz 3 (Lec 6-7)
2/20	10	Current Natural Selection – Homo sapiens I	
2/23	<b>Midterm 1 (Lectures 2-9)</b>		
2/27	11	Current Natural Selection – Homo sapiens II	
3/2	12	Population Ecology	Quiz 4 (Lec 10)
3/6	13	Population Growth	
3/9	14	Intraspecific Competitions	Quiz 5 (Lec 11-12)
<b>SPRING BREAK</b>			
3/20	15	Community Ecology I	
3/23	16	Community Ecology II	Quiz 6
3/27	17	Plant Ecology	
3/30	18	Food Webs	Quiz 7 (Lec 15-16)
4/3	<b>Midterm 2 (Lectures 10-17)</b>		
4/6	19	Predator-Prey/Symbiosis	
4/10	20	Movement of Carbon in Ecosystems	
4/13	21	Global Climate Change I	Quiz 8 (Lec 19)
4/17	22	Global Climate Change II	
4/20	23	Latitudinal Gradient Effects	Quiz 9 (Lec 20-21)
4/24	24	Urban Ecology	
4/27	25	Conservation Ecology	Quiz 10 (Lec 22-23)
5/1	26	TBA	
<b>5/?</b>	<b>Final (Lectures 18-25)</b>		

\*Topics and quizzes are subject to change!