

Intro to Ecology and Evolution
11:216:101 (3 credits)
Spring 2019

CONTACT INFORMATION

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COURSE WEBSITE, RESOURCES AND MATERIALS

- CANVAS
- Webpage: www.rci.rutgers.edu/~ssukhdeo

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.

Contemporary Challenges [CC]

Our Common Future (CCO-2)

Analyze the relationship that science and technology have to a contemporary social issue.

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.
In-lecture quizzes	100*
Midterm1	120
Midterm 2	120
Final	120
<hr/> Total	<hr/> 460

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

In-lecture quizzes will be used to assess the Course Learning Goal E and Departmental learning Goal #7. The students' answers will be used to assess all the rest of the Course and Departmental Learning goals.

LECTURE SCHEDULE SPRING 2019

Date	Lecture	TOPICS	Learning Goals
1/24	1	Introduction	2 & A
1/28	2	Evolution – Charles Darwin & Alfred Wallace	2 & C
1/31	3	Natural Selection I	2 & C
2/4	4	Natural Selection II	6 & C
2/7	5	Evolutionary Mechanisms I	C & D
2/11	6	Evolutionary Mechanisms II	C & D
2/14	7	Experimental Evolution	C
2/18	8	What is CRISPR-cas9?	2 & A
2/21	9	Evolution of Plants Domestication	2, C & D
2/25	10	Evolution of Homo sapiens	2 & A
2/28	EXAM 1 (Lecture 2-9)		
3/4	11	Current Natural Selection – Homo sapiens I	2, C & D
3/7	12	Current Natural Selection – Homo sapiens II	1 & B
3/11	13	Population Ecology	6 & B
3/14	14	Population Growth	6 & C
	SPRING BREAK		
3/25	15	Intraspecific Effects: Density-dependent & -independent effects	6 & B
3/28	16	Community Ecology	6 & C
4/1	17	Interspecific Competition	B & C
4/4	18	Predator-Prey Ecology	1 & B
4/8	EXAM 2 (Lecture 10-17)		
4/11	19	Ecology of lakes & rivers	6 & C
4/15	20	Food Webs	C & D
4/18	21	Movement of Carbon in Ecosystems	6, C & D
4/22	22	Global Climate Change I	6, C & D
4/25	23	Global Climate Change II	C & D
4/29	24	Latitudinal Gradient Effects	6 & C
5/2	25	Global Ecology	C & D
5/6	26	Conservation Ecology & Our Future?	C & D
5/14	EXAM 3 (Lecture 18-25) 8:00-9:20 PM		

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/>

ABSENCE POLICY

Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/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.

STUDENT WELLNESS SERVICES

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ 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 offer 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/

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.

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 safe space.