Evolutionary Biogeography BSC4821 – Fall 2020

Credits: 3

Schedule: Tuesdays 1:55-3:50 (periods 7-8); Thursday 1:55-2:45 (period 7)

Location: 100% online

Instructors

Dr. Nico Cellinese
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Florida Museum of Natural History
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Office hours

By appointment

Prerequisites

Biogeography is a broad field and a multi-disciplinary approach is essential. Any of the following BSC 2010, BSC 2010L, BSC 2011 and BSC 2011L, each with a grade of C or better, is required, in addition to a keen interest in evolution and biological diversity and willingness to participate actively in classes.

Course description

Biogeography is the study of patterns in distribution, diversity and abundance, and is an exciting and rapidly evolving field, integrating systematics, ecology and evolution with geography, geology and climatology. This course examines the distribution of organisms around Earth and addresses the processes that determine their patterns and spread. We will consider similarities of communities of biota in different parts of the world as well as common distribution patterns among individual taxa. We will 'travel' the planet and examine different biomes, from high elevation and high latitudes, to the tropics and island systems. We will learn how through observations, data collection, and a suite of analytical methods the biogeographic history of organisms can be inferred and their future distribution patterns predicted. During this course, we will discuss a number of hot, current topics, such as global climate change, gene editing, impact of invasive species, among many others.

Objectives and basis for grading

Lectures

Lectures will provide an overview of major topics in biogeography. Students will be introduced to a broad variety of research areas. Popular articles and/or scientific papers will be assigned as reading in preparation for class discussions.

Exams

Class discussions/quizzes and one final exam will test the student's understanding of course topics, as covered by lectures and in assigned readings.

Grading

% by activity

Activity	**% of final grade**
Class discussions/quizzes	50
Final exam	50

94.0-100%	A
90.0-93.9%	A-
87.0-89.9%	B+
84.0-86.9%	B
80.0-83.9 %	B-
77.0-79.9%	C+
74.0-76.9%	C
70.0-73.9%	C-
67.0-69.9%	D+
64.0-66.9%	D
60.0-63.9%	D-
<60%	E

Assignments and attendance policy

Attendance at class is **mandatory**, and students should be prepared to justify absences. Frequent absences will certainly result in the student being less able to effectively answer exam questions. No make-up exams will be given unless exceptional circumstances arise.

Course textbooks:
Lomolino, M.V., Riddle, B.R., Whittaker, R.J. 2017. Biogeography, 5th Edition. Sinauer (not required, but recommended).

Archibold, O.W. Ecology of World Vegetation. 1995. Springer (not required, but recommended).

Other readings will be provided.

COURSE OUTLINE

The schedule below may be subject to slight changes.

WEEK 1	
September 1	Introduction to course and Biogeography World Climate Pt1
September 3	World Climate Pt 2
WEEK 2	
September 8	Major Biomes: Tropical rainforests/montane forests Class discussion/Quizzes
September 10	Major Biomes: Tropical coastal, deciduous and savannas forests
WEEK 3	
September 15	Major Biomes: Deserts Class discussion/Quizzes
September 17	Major Biomes: Mediterranean
WEEK 4	
September 22	Major Biomes: Subtropical/temperate rainforests, evergreen and deciduous forests Class discussion/Quizzes
September 24	Major Biomes: Boreal, tundra, alpine
WEEK 5	
September 29	Major Biomes: Temperate grasslands Class discussion/Quizzes
October 1	Distribution patterns (floristic/faunistic)
WEEK 6	
October 6	Evolution I Class discussion/Quizzes
October 8	Evolution II
WEEK 7	
October 13	Historical Biogeography I -Principles Class discussion/Quizzes
October 15	Historical Biogeography II - Approaches
WEEK 8	
October 20	Historical Biogeography III - Approaches Class discussion/Quizzes
October 22	Historical Biogeography IV: Earth history

WEEK 9

October 27	Historical Biogeography: Empirical studies I
	Class discussion/Quizzes
October 29	Historical Biogeography: Empirical studies II

WEEK 10

November 3	Relationships of Flora and Fauna: Southern Hemisphere and Wallace line
	Class discussion/Quizzes
November 5	Relationships of Flora and Fauna: Eastern Asia/Eastern North America

WEEK11

November 10	Island biogeography: Equilibrium Theory and dispersal biology
	Class discussion/Quizzes
November 12	Island biogeography: Adaptive radiation

WEEK 12

November 17	Island biogeography: Hawaiian Islands
	Class discussion/Quizzes
November 19	Island biogeography: Islands in the sky

WEEK 13

November 24	Phylogeography
	Class discussion/Quizzes
November 26	Thanksgiving Holidays

WEEK 14

December 1	Biodiversity crisis and conservation biogeography I
	Class discussion/Quizzes
December 3	Biodiversity crisis and conservation biogeography II

WEEK 15

December 8	Final thoughts
	Class discussion/Quizzes

Class Demeanor Expected by Instructor: Students should be considerate, polite, open-minded, objective and show interest in the work of others. UF rules prohibit having food or drinks in classrooms. Use of tobacco products (in any form) in the classroom is prohibited.

Additional General Information: The following information applies to all courses at the University of Florida.

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standard of honesty and integrity.

Academic Honesty: As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

Copyrighted Materials and Software Use: All students are required and expected to obey the laws and legal agreements governing copyrighted material and software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Accommodations for Students with Disabilities: Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

University Counseling Services: Resources are available on-campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

1. University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling;
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling;
3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual counseling; and
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.