

BIOGEOGRAPHY - BIOL 5010/6010 - FALL 2017

'The study of the distribution of species and ecosystems in geographic space and through geological time'

MWF 2:30-3:20 pm, Biology/Natural Resources Building, room 278

Professors:

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Why study Biogeography?

Biogeography is an integrative field of science that combines concepts and information from evolutionary biology, ecology, geology, and physical geography. Modern biogeographic research unifies information and ideas from the physiological and ecological constraints on organismal distribution, to geological and climatological processes operating at global spatial scales and evolutionary time frames. Thus, biogeography attempts to explain the patterns of species distribution across geographical areas through a combination of historical factors, such as speciation, extinction, glaciation, and continental drift. In the present era of human-caused alteration of landscapes and climate change, an understanding of biogeography is critical to predicting future landscapes and the fate of resident species, including humans.

Essential Learning Objectives (IDEA Center)	Course Objectives & Outcomes
Gaining factual knowledge (terminology, classifications, methods, trends)	You will learn and recall basic biological facts, vocabulary, and history important for studying biogeography
Learning fundamental principles, generalizations, or theories	You will understand the biological and geological processes determining the distribution of organisms currently and historically; you will learn evolutionary concepts and comprehend the unifying role of evolution in all biology
Learning to apply course materials (to improve rational thinking, problem solving and decisions)	You will be able to use scientific reasoning skills, such as when we engage in class discussions, to understand both biogeography and evolution as a science

Course Format – Each week will typically consist of two lecture periods (Monday and Wednesday), and a group discussion on Fridays, in which we analyze and discuss a paper or papers from the primary literature. Outside of class you will read the textbook and the articles we assign, and take online quizzes to assist learning and prepare you to understand

the concepts we cover in class. For discussion periods you will submit questions or comments for discussion, based on the reading.

Course Resources

Canvas: You will use our Canvas site to receive important course announcements, download class materials, take quizzes and exams, and view grades. ***Sign up for push notifications of announcements as soon as possible.***

Textbook (required): Lomolino & Riddle. 2016. *Biogeography*, 5th Ed., Sinauer Assoc. ISBN 9781605354729. At USU Bookstore; Amazon.com.

Assignments:

- **Textbook chapters:** you will have reading assignments to learn basic facts and concepts, so that we can explore concepts, questions, and scientific analyses more deeply during class time.
- **Articles for discussion:** In most weeks we will assign an article or articles from the primary literature, to be discussed during the Friday class. Before class, you will submit three questions or topics for discussion.
- **Quizzes:** outside of class you will take an online quiz every week (in Canvas) on the chapter reading. The quiz is **open book** and **due by 2:30 pm** before the first class period on that chapter. This is to ensure that you have the background information to get the most out of class time.
- **Exams:** The quizzes and articles will help you prepare for exams, but exams will emphasize what we cover in class. You will use both simple fact recall and higher-level scientific reasoning skills on exams. We will not meet in class on exam days; you will take exams on Canvas for 50 minutes during the regular class time, 2:30-3:20 pm. **Exams are closed-book and on your own.** *Absences demanded by university-related activities, travel for interviews, for medical and family emergencies can be accommodated, given documentation & advance notice.*
- **Graduate Students:** You will each be responsible for preparing and delivering a lecture.

Undergraduate Grading: Your grade will be weighted as follows:

Quizzes	20%
Exams (2 @ 20%)	40%
In-class participation	10%
Final Exam	30%

Graduate Grading: Your grade will be weighted as follows:

Quizzes	10%
Exams (2 @ 20%)	40%
In-class participation	10%
Lecture	10%
Final Exam	30%

Grade assignments are according to the USU standard: A (93-100%), A- (90-92.9%), B+ (87-89.9%), B (83-86.9%), B- (80-82.9%), C+ (77-79.9%), C (73-76.9%), C- (70-72.9%), D+ (67-69.9%), D (60-66.9%), and F (below 60%).

University Policies

The Honor System & Plagiarism:

www.usu.edu/studentservices/studentcode/article6.cfm. To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge: ***"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."*** Students have a responsibility to promote academic integrity at the University by not participating in or facilitating others' participation in any act of academic dishonesty and by reporting all violations or suspected violations of the Academic Integrity Standard to their instructors. Violations of the Academic Integrity Standard (academic violations) include but are not limited to: cheating, falsification, plagiarism.

ADA compliance: <http://catalog.usu.edu/content.php?catoid=12&navoid=3168>

Important Dates (drop/add etc.):

<http://catalog.usu.edu/content.php?catoid=12&navoid=7345>

Incompletes: USU policy applies;

<http://catalog.usu.edu/content.php?catoid=12&navoid=3583>

Date	Topic	L & R Chapter
M Aug 28	Introduction & Lecture - The Science of Biogeography (Pitts)	1
W Aug 30	The Science of Biogeography - (Pitts)	1
F Sep 1	Discussion	1 (quiz)
M Sep 4	Labor Day Holiday – no class	
W Sep 6	The History and Reticulating Phylogeny of Biogeography (Pitts)	2 (quiz)
F Sep 8	The History and Reticulating Phylogeny of Biogeography (Pitts)	2
M Sep 11	The Geographic Template: Visualization and Analysis of Biogeographic Patterns (von Dohlen)	3 (quiz)
W Sep 13	The Geographic Template: Visualization and Analysis of Biogeographic Patterns (von Dohlen)	3
F Sep 15	Discussion	
M Sep 18	Distributions of Species: Ecological Foundations (von Dohlen)	4 (quiz)
W Sep 20	Distributions of Species: Ecological Foundations (von Dohlen)	4
F Sep 22	Discussion	
M Sep 25	The Distribution and Dynamics of Communities, Biomes, and Ecosystems (von Dohlen)	5 (quiz)
W Sep 27	The Distribution and Dynamics of Communities, Biomes, and Ecosystems (von Dohlen)	
F Sep 29	EXAM I	5
M Oct 2	Dispersal and Immigration (Pitts)	6 (quiz)
W Oct 4	Dispersal and Immigration (Pitts)	6
F Oct 6	Discussion	
M Oct 9	Speciation and Extinction (Pitts)	7 (quiz)
W Oct 11	Speciation and Extinction (Pitts)	7
F Oct 13	Discussion	
M Oct 16	The Changing Earth (Pitts)	8 (quiz)
W Oct 18	The Changing Earth (Pitts)	8
Th Oct 19	Discussion	
Fri Oct 20	Fall Break	
M Oct 23	Glaciation and Biogeographic Dynamics of the Pleistocene (Pitts)	9 (quiz)
W Oct 25	Glaciation and Biogeographic Dynamics of the Pleistocene (Pitts)	9

F Oct 27	Discussion	
M Oct 30	The Geography of Diversification and Regionalization (von Dohlen)	10 (quiz)
W Nov 1	The Geography of Diversification and Regionalization (von Dohlen)	10
F Nov 3	EXAM II	
M Nov 6	No Class – Entomological Society of America Annual Meeting	
W Nov 8	Reconstructing the Evolutionary History of Lineages (von Dohlen)	11 (quiz)
F Nov 10	Reconstructing the Evolutionary History of Lineages (von Dohlen)	11
M Nov 13	Reconstructing the Geographic History of Lineages and Biotas (von Dohlen)	12 (quiz)
W Nov 15	Reconstructing the Geographic History of Lineages and Biotas (von Dohlen)	12
F Nov 17	Discussion	
M Nov 20	Island Biogeography (Pitts)	13 (quiz)
Nov 22-24	Thanksgiving Break Wed-Fri	
M Nov 27	Areography, Ecogeography, and Macroecology of Continental and Oceanic Biotas (Pitts)	14 (quiz)
W Nov 29	Areography, Ecogeography, and Macroecology of Continental and Oceanic Biotas (Pitts)	14
F Dec 1	Discussion	
M Dec 4	Biogeography of Humanity, Biological Diversity, and Conservation Biogeography (graduate student)	15 (quiz)
W Dec 6	Biogeography of Humanity, Biological Diversity, and Conservation Biogeography (graduate student)	15
F Dec 8	Biogeography of Humanity, Biological Diversity, and Conservation Biogeography (graduate student)	15
W Dec 13	Final Exam 1:30 – 3:20	