GGR305 H1S: Biogeography
Winter 2018
University of Toronto
Department of Geography and Planning

Instructor
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Office Hours: Thursdays 16:00 – 17:00

Teaching Assistant
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Course Description
Identifies patterns in and explains processes behind plant and animal distributions through space and time. Topics covered include ecological and evolutionary dynamics, disturbance, dispersal, migration, continental drift, speciation, extinction, paleoenvironments and island biogeography. We also examine terrestrial and marine biomes, the meaning of biodiversity, conservation challenges, and recent biogeographic changes associated with human impact.

Recommended Preparation
8.0 FCE's including GGR100H1 or (BIO120H1, BIO130H1)

Course Objectives
During the course of GGR305 students will:

1. Develop an integrative understanding of how ecological controls and evolutionary history work together to result in the modern distribution of organisms on Earth.
2. Gain an appreciation of the exciting modern research occurring in the field of biogeography, through regular contact with primary scientific literature.
3. Apply the foundational concepts of biogeography in the context of ongoing, rapid environmental change in the modern world.

Lectures
Date/Time: Thursday 18:00 – 20:00
Location: SS 1071

While there is no formal attendance mark in the course, it is expected that you will make every attempt to attend each lecture throughout the term. As GGR305 only meets once per week, missing a lecture will result in your absence from the presentation and discussion of a significant amount of the courses material. Should you have cause to miss a class, it is solely your responsibility to ensure that you are up to date on the missed material.

Course Material

Readings

There will not be a formal textbook required for GGR305. Each lecture will be accompanied by lecture notes / slides developed by the instructor. Readings associated with this material will also be assigned throughout the term.

For those students who wish to have a textbook for further reading, the three books listed below are recommended. Note, we will not be following any of these books directly, and you are not required to purchase any of them, though all three (as well as any previous versions) are all excellent reference guides.

Some of these resources are available electronically through the library course reserve on Blackboard, and others are physically available at the Gerstein Library.

Cox CB, Moore PD, Ladle R (2016) Biogeography: An Ecological and Evolutionary Approach, 9th Ed. Wiley-Blackwell. ISBN: 978-1118968581

MacDonald G (2017) Biogeography: Introduction to Space, Time, and Life, 2ND Ed. Wiley. ISBN: 978-1118315255 (available December 2017)

Lomolino MV, Riddle BR, Whitaker RJ (2016) Biogeography: Biological Diversity across Space and Time, 5th Ed. Oxford. ISBN: 978-1605354729

Blackboard Online Environment

There will be an active Blackboard environment associated with the course. This will be your portal for accessing lecture material, submitting assignments, and liaising with your fellow students related to course material. I expect that you will be checking Blackboard regularly for updates related to the course.

Important Dates

Last day to cancel S section code courses without academic penalty: Mar 14th, 2018

Evaluation and Mark Breakdown

Item	Weight	Due Date
Extinction Assignment	15%	March 1, 2018
Island Biogeography Assignment	20%	March 15, 2018
Conservation Assignment	15%	March 29, 2018
Midterm Examination	20%	February 15, 2018
Final Examination	30%	Final exam period

Assignments

There will be three assignments during the term, which will cumulatively account for 50% of your final grade. A brief description of the assignments is provided here. Further details will follow, available in lecture and on Blackboard.

Extinction Assignment – The question of whether the Earth is in the midst of a mass extinction event is a topic of intense debate among biogeographers. In this assignment you will

summarize the arguments for and against the classification of the ongoing biodiversity crisis as a "mass extinction."

Island Biogeography Assignment – The concepts associated with the dispersal ability of organisms as it relates to islands is among the most unifying concepts of modern biogeography. In this assignment you will re-visit some of the classical data used to develop and support this theory, in order to develop a complete understanding of this critical topic, based on empirical data.

Conservation Biogeography Assignment – The application of biogeographic principles, including those you will have learned as they relate to islands, to questions of conservation is among the most exciting ways biogeography is contributing to modern science. By choosing and focusing on a threatened species of interest, you will explore the geographic and ecological factors that are central to developing conservation plans in the modern, multiple stressor environment.

Examinations

A mid-term examination for GGR305 will take place during the normally scheduled class period on February 15, 2018. The midterm examination will account for 20% of your final grade in the course. The final examination for GGR305 will take place during the university scheduled examination period, which runs from April 9 – 30, 2018. The schedule for final examinations will be released in February. The final examination will be cumulative, and account for 30% of your final grade.

Deadlines / Late Assignment Policy

The penalty for handing in a late assignment will be the deduction of 5% of the assignment mark per day (i.e. an assignment marked out of 40 marks will lose 2 marks per day late). Weekends will count as two days, if applicable.

Missed Term Examination Policy

Students who miss the term test on February 15, 2018 for valid reasons should contact the instructor immediately. Students who miss the term test are required to submit paper documentation as support. The instructor will coordinate with students to offer a makeup examination at the earliest mutually available date/time, once proper documentation has been received.

Where the reason for absence is a medical issue, students should have their medical practitioner fill out the "Verification of Student Illness or Injury form" as documentation.
http://www.illnessverification.utoronto.ca/index.php

For non-medical documentation, the Faculty of Arts and Science has guidelines, and a relevant form, that should be reviewed and followed.
http://www.artsci.utoronto.ca/current/petitions/process#documentation

Accessibility Services

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible:
disability.services@utoronto.ca

Email Policy

Instructor-student interaction occurs in the classroom and during office hours. Email contact is limited to questions requiring simple yes/no answers, making appointments, and dealing with emergencies. Please come to my office hours or see me after class if you wish to discuss matters related to the class.

Academic Integrity

Plagiarism is an academic offense at the University of Toronto. Plagiarism is quoting (or paraphrasing) the work of an author (including the work of fellow students) without proper use of citation. Quotation marks are required when using an author's words. Students also should not be submitting any academic work for which credit has previously been obtained or is being sought, without first discussing with the instructor. Please consult the "Rules and Regulations" section of the Arts and Science Calendar https://fas.calendar.utoronto.ca/rules-regulations#marks for further information and check the 'How not to plagiarize' website at: http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize.

Course Schedule

Date	Topic	Assigned Reading
January 4, 2018	Course Introduction Where Did Biogeography Come From?	Browne J (2001) History of Biogeography. *Encyclopedia of Life Sciences.* Wiley & Sons.
January 11, 2018	Historical Biogeography – A History of Life on Earth	Narbonne GM, Gehling JG (2003) Life after snowball: The oldest complex Ediacaran fossils. *Geology* 31: 27–30.
January 18, 2018	Evolution and Speciation	Kozak KH, Wiens JJ (2007) Climatic zonation drives latitudinal variation in speciation mechanisms. *Proc. R. Soc. B.* 274: 2995-3003.
January 25, 2018	Biological Dispersal – the Movement of Individuals	Wonham M, Carlton J, Ruiz G, Smith LD (2000) Fish and ships: relating dispersal frequency to success in biological invasions. *Marine Biology* 136: 1111-1121.
February 1, 2018	The Concept of Ecological Niches	Martínez-Meyer E, Townsend Peterson A, Hargrove WW (2004) Ecological niches as stable distributional constraints on mammal species, with implications for Pleistocene extinctions and
February 8, 2018	Extinction and Paleoenvironments	

		climate change projections for biodiversity. *Global Ecology and Biogeography* 13: 305–314.
February 15, 2018	Midterm Examination – In Class	
February 22, 2018	Reading Week – No Class	
March 1, 2018	The Theory of Island Biogeography	Whitaker RJ, Triantis KA, Ladle RJ (2008) A general dynamic theory of oceanic island biogeography. *Journal of Biogeography* 35: 977–994.
March 8, 2018	Disturbance and Succession	Hume et al. (2016) Soil C:N:P dynamics during secondary succession following fire in the boreal forest of central Canada. *Forest Ecology and Management* 369: 1-9.
March 15, 2018	Landscape Heterogeneity and Biodiversity	Goddard MA, Dougill AJ, Benton TG (2009) Scaling up from gardens: biodiversity conservation in urban environments. *Trends in Ecology and Evolution* 25: 90-98.
March 22, 2018	Biogeography and Conservation Science	
March 29, 2018	Global Environmental Change Course Review	-
April 9-30, 2018	Final Examination Period	