

GEOGRAPHY AND PLANNING

GPHY 207 – Principles of Biogeography



Course Instructor	Junyan Zhang	Email: junyan.zhang@queensu.ca
Office	Online Office Hours	
Contact Time	Two 1.5 hour lectures per week One 1.5 hour laboratory per week	
Format	Lectures and labs based on textbook and reading materials	
Class Assessment	Quizzes (best 3 of 4)	30%
	Laboratory Assignments (3)	25%
	Group Research Project	20%
	Final Exam	25%

COURSE OVERVIEW

As with many sub-disciplines of Geography, biogeography integrates knowledge from a wide variety of disciplines to help understand the factors that control the distribution and abundance of organisms on Earth. For instance, biogeography addresses such questions as “Why is biological diversity so high in tropical ecosystems?” or “Why do similar species not always occupy areas with similar climatic regimes?” These questions require the integration of knowledge from geology, biology, ecology and other disciplines and can be discussed within the contexts of historical and ecological biogeography. This course will focus on interactions among organisms, and interactions between organisms and their environment that serve to define critical habitats required by all species. We will also examine current environmental issues through a biogeographical lens, including climate change, invasive species, and loss of biological diversity. At the end of the course, you should have a broad understanding of the key factors that influence the distribution and abundance of organisms on earth, and how these factors operate over a range of spatial and temporal scales.

LEARNING OUTCOMES

- To provide a critical understanding of key concepts related to ecological and historical biogeography.
- To understand the distribution of life across the earth’s surface as a function of the physical environment and biological interactions.
- To understand the linkages between patterns and processes across a range of spatial and temporal scales.
- To discuss global patterns as a function of climate, latitude, glaciations, etc.
- To be able to explain the impacts of contemporary environmental issues on biophysical processes and environmental change.

COURSE TOPICS

History of biogeography, distribution of species, communities and biomes, biological diversity, speciation and extinction, dispersal, plate tectonics and continental drift, patterns of continental and oceanic diversity, human evolution and impacts, island biogeography, biogeographical consequences of global change, effects of disturbance, biogeography and conservation.

COURSE READINGS

Required: Lomolino, M.V., B.R. Riddle, and R.J. Whittaker. *Biogeography: Biological Diversity Across Space and Time*, 5th ed. 2016. Sinauer Associates, Oxford University Press.
Optional: MacDonald, G.M., 2003. *Biogeography: Space, Time, and Life*. John Wiley and Sons, Inc., New York, NY.