

Field Methods in Biogeography
University of Pittsburgh BioSc 1370
Pymatuning Laboratory of Ecology
Summer 2008

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Course goals and objectives:

Biogeography, the study of the current and historic distributions of organisms, is a broad subject that synthesizes principles from several academic disciplines including geography, biology, ecology, and earth sciences. This course will address the spatial and temporal *patterns* of plant and animal distributions as well as the underlying *processes* that influence these patterns. The course content will include both ecological and historical perspectives on biogeographic distributions, with an emphasis on field methods used by biogeographers. Human impacts on biotic distributions and technological advances that have influenced biogeography will also be addressed.

By the end of the course, students should be able to

- \$ clearly define terms and explain principles that are relevant to biogeography;
- \$ critically analyze journal articles on biogeographic issues;
- \$ describe and use various field methods employed by biogeographers; and
- \$ actively participate in group discussions/projects.

Text:

MacDonald, Glen. 2003. *Biogeography: Introduction to Space, Time and Life*. John Wiley & Sons, Inc. New York, NY. 518 pp.

In addition, we will read several journal articles on topics to be announced.

Grading:

<u>Components of final grade:</u>		<u>Scale for letter grades:</u>
Participation	10%	≥90% A
Article summaries	20%	87-89 B+
Field trip reports	20%	80-86 B
Tests (2 @ 25% each)	50%	77-79 C+
	====	70-76 C
	100%	67-69 D+
		60-66 D
		<60% F

Attendance/Participation:

Regular attendance and active participation are expected. I will assess student performance on a regular basis and will give you an opportunity to evaluate your own performance as well. Full credit for the participation part of the final grade will be earned by students who are consistently and actively engaged in all class discussions/activities.

Article summaries:

We will read several articles from the scientific literature in order to further explore particular concepts and to introduce you to the range of topics studied by biogeographers. Short written summaries of each article will be due on the day of the class discussion. More details will be provided on a separate sheet.

Field trip reports:

We will take several field trips during this course in order to visit some local sites, to meet with professionals who work at those sites, and to practice some field methods used by biogeographers. A tentative schedule for field trip sites is listed in the course calendar. More details will be provided about the field trip reports when they are assigned.

Tests:

The 2 tests will be composed of short answer and essay questions. If you need any accommodations during tests, please let me know in advance so that we can make arrangements. Make-up tests will be permitted only if you have gotten approval from me *in advance* or if you have a *verifiable* excuse related to a medical condition or personal emergency. The make-up test will be different from the regular test.

General notes:

As a courtesy to the class, please remember to turn cell phones off. If you have a circumstance that requires you to be accessible by phone, please discuss your situation with me prior to the start of that day's class; in this case, your cell phone must be set to vibrate/silence.

A note about academic honesty: I take this very seriously. Any attempts to misrepresent anyone else's work or ideas as your own will be penalized and could result in a failing grade for the course.

Please feel free to contact me to discuss *any* aspect of this class. I will be available during daily breaks, or you may make an appointment to meet me after class.

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The following calendar is a *tentative* schedule of daily topics / readings / field trips. Any changes will be announced in class.
The Chapters (*Ch*) refer to the MacDonald text; I encourage you to complete the readings before coming to class.

Monday	Tuesday	Wednesday	Thursday	Friday
<p>6/2 Course Introduction History of Biogeography Physical Geography: overview Field Guides Physiognomy</p> <p><i>Ch 1 and 2</i></p>	<p>6/3 Biodiversity * Overview * Measurements * Global patterns</p> <p>Point Quarter vs. Plot</p> <p><i>Ch 3 and 14 (p.406-428)</i></p>	<p>6/4 Species Distributions Communities/Ecosystems Biomes/Ecoregions</p> <p>Dendrochronology</p> <p><i>Ch 4, 6, 10, and 13</i></p>	<p>6/6 Erie National Wildlife Refuge ALL DAY</p> <p><i>Ch 5</i></p>	<p>6/7 Dendrochronology (cont.)</p> <p>ARTICLE DISCUSSIONS</p>
<p>6/9 TEST 1</p> <p>*****</p> <p>Dispersal Natural Selection Invasive Species</p> <p><i>Ch 8 and 9</i></p>	<p>6/10 Presque Isle State Park ALL DAY</p>	<p>6/11 Zebra Mussel Research ALL DAY</p>	<p>6/12 Island Biogeography * Species Patterns * Community Patterns</p> <p>Pymatuning Islands</p> <p><i>Ch 14 (p. 428-447)</i></p>	<p>6/13 GIS Methods – Intro Plate Tectonics</p> <p>ARTICLE DISCUSSIONS</p> <p><i>Ch 7 (p. 191-205)</i></p>
<p>6/16 Ice Ages Methods in Historical Biogeography GIS – Conservation Applications WPC Land Stewardship</p> <p><i>Ch 7 (p. 205-217)</i></p>	<p>6/17 Holden Arboretum ALL DAY</p>	<p>6/18 French Creek ALL DAY</p>	<p>6/19 Climate Change Applied Biogeography</p> <p>ARTICLE DISCUSSIONS</p> <p><i>Ch 7 (p. 217-end); Ch 15</i></p>	<p>6/20 TEST 2</p>