Biogeography

Our goal in this course is to understand the spatial patterns of plant and animal distributions. To achieve this goal, we will examine the historical (speciation, migration, dispersal), environmental (climate, soils, topography) and biotic (competition, resource partitioning) influences behind these patterns. We will also explore the role of disturbance as a shaper of biological communities. Along the way, you will be introduced to field, laboratory and statistical means of analyzing ecological data. As you develop an understanding of how and why biological diversity varies over the surface of the Earth, you can appreciate the role of human activities in altering biogeographic patterns.

Readings:
Copies of the readings (pdf format) will be placed on Blackboard. These will be drawn primarily from two textbooks:


Supplemental readings may be added during the semester.

Grading: There will be two exams: a midterm and a non-cumulative final, each worth 100 points. The format of the exams will be primarily short essay, in addition to terminology identification, and definitional fill-ins. In addition to exams, students will write a scientific research paper, also worth 100 points, based on a class field experience focused on Hemlock Woolly Adelgid, an invasive pest recently established in Ohio. Guidelines are provided in a separate handout. Finally, 7-8 activities and assignments (mostly in-class and worth 5 points) amplifying course material will contribute a small percentage to your final grade. (Note: these are intended as in-class activities, and make-ups are not permitted unless you have prior permission from me, or a validated excuse for your absence.) Graduate students will be held to a higher standard on exams and with their written assignments, and will be required to synthesize more literature (number of references) for their paper. It is a good practice to save all of your graded and returned assignments until you receive your grade for the course.

Grading scale:

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<tr>
<th>Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100%</td>
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<td>A-</td>
<td>90-92</td>
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<td>B+</td>
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(prodigious cheating)

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Course Expectations

Instructor:
- Listen and respond to student questions and concerns
- Have reasonable demands on work outside of class time
- Be available for assistance outside of class time
- Apply consistent and fair grading criteria
- Provide useful and timely feedback on student work
- Through the presentation of material and activities, provide an atmosphere that facilitates learning, critical thinking, and intellectual growth

Student:
- Show up to class and be on time
- Complete assignments
- Ask the instructor to clarify material that is unclear
- Monitor your e-mail for correspondence related to the course, and respond as necessary in a timely manner
- Work to your potential, and turn in your best work.

Seventy percent of success in life is showing up - Woody Allen. Attendance is expected. Although not a basis for student grades, good attendance is essential for success in this class. (It is essential to earn credit for in-class activities.) If any topic is unclear after lecture, please do not hesitate to see me as soon as possible, individually or in a group. Feel free to e-mail me with questions as well. Please note, I do not give out copies of my lecture notes. If you miss class, you will need to get notes from a fellow student. You may wish to contact me before the next class so that I can tell you what we covered.

Classroom etiquette: It is disruptive to arrive late, or to get up and leave while class is still in session. If for some reason you can’t get to class on time or must leave early, please inform me beforehand. Unless special arrangements are made with me in advance, laptop computers are not permitted during class. Focus on this class for 55 minutes: turn off your cell phones and stow them away during class.
<table>
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<th>Week:</th>
<th>Topic:</th>
<th>Readings:</th>
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| Week 1    | Introductions. Course overview.  
I. HISTORICAL BIOGEOGRAPHY: Broad Spatial Scales & Long Time Frames  
Evolution, natural selection, speciation & extinction | L – Chapter 1  
Background: M – Chapter 2, pp. 9-22  
M – Chapter 9 |
| Week 2    | No Class Monday: MLK Holiday.  
More on speciation & extinction; endemism | M – Chapter 8 |
| Week 3    | Biogeographical dispersal & distributions;  
“Paleobiogeography:” continental drifting, climate change, and biogeographical regions;  
Biogeographic patterns in the Quaternary | [no new readings] |
| Week 4    | II. ECOLOGICAL BIOGEOGRAPHY: Interactions between species and their environments, now and in the recent past  
Limiting Factors & controls on species ranges.  
Saturday (2/16)  
Field Trip to Jackson County. | Background: M – Chapter 2, pp. 22-35;  
L – Chapter 4, pp. 71-90 |
| Week 5    | The physical environment (macro- and microclimate); environmental gradients. | [continue previous readings] |
| Week 6    | Ordination. Friday (3/1): Midterm Exam (everything prior to ordination) | [no new readings] |
| Week 7    | Soils | [continue previous readings] |
| Week 8    | Mar 4/6/8 | SPRING BREAK! ☀ |
| Week 9    | Mar 18/20/22 | SPRING BREAK! ☀ |
| Week 10   | Mar 25/27/29 | Biotic interactions (the role of competition in zoogeography)  
L – Chapter 4, pp. 92-100 |
| Week 11   | Apr 1/3/5 | Succession  
No Class Wednesday & Friday – AAG (Geography) conference | [no new readings] |
| Week 12   | Apr 8/10/12 | Changes to the Eastern Deciduous Forest since settlement | [no new readings] |
| Week 13   | Apr 15/17/19 | III. APPLICATIONS IN BIOGEOGRAPHY  
Island Biogeography Theory & conservation implications | M – Chapter 14, pp. 428-447 |
| Week 14   | Apr 22/24/26 | Patterns of biological diversity; climate change.  
Final papers due Friday (4/26) | M – Chapter 14, pp. 406-428  
Iverson et al. 2008 |

†Lomolino’s Chapter 8 provides extensive background on the history and mechanisms of plate tectonics, and you are encouraged to read these sections briefly for background. The assigned reading focuses more on the past configurations of the continents.

**FINAL EXAM: Friday, May 3rd 1-3 PM**

*This is the next-to-last exam slot. Do not make plans to leave Athens before the exam!*