

Biogeography

Part 1: Species Richness and the Extinction Crisis

Estimates of global species richness and introduction to biogeographic patterns. Constructing and interpreting species accumulation curves. Comparison of alpha, gamma, and beta diversity. Mass extinctions and the current extinction crisis.

- Bolt from the Blue
- Species Richness Varies Systematically
- Counting Species
- What Determines Local Species Diversity?
- Species Turnover
- Biogeography and Conservation Biology
- Summary of Part 1
- Quiz Questions
- Ask Your Instructor

Part 2: Ecological Biogeography

Species-area curves, island biogeography, dispersal, experimental tests of island biogeography and application to conservation biology.

- Islands and Patterns
- Species-Area Curves
- Island Biogeography
- Equilibrium Theory of Island Biogeography
- Testing the Theory
- Dispersal
- Species-Area Curves: Islands vs. Mainland
- Island Biogeography and Conservation Biology
- Summary of Part 2
- Quiz Questions
- Ask Your Instructor

Part 3: Historical Biogeography

Plate tectonics. Sympatric and allopatric speciation, including the roles of vicariance and dispersal, and their influence on biogeographic patterns. Latitudinal gradients. Hotspots and conservation biology.

- Deep History, Big Changes
- Plate Tectonics, Briefly
- Vicariance, Isolation, and Allopatric Speciation
- Dispersal, Founder Events, and Allopatric Speciation
- Distinguishing Modes of Allopatric Speciation
- Sympatric Speciation

- Historical Biogeographic Examples
- Exploring Latitudinal Gradients
- Biodiversity Hotspots and Conservation
- Summary of Part 3
- Quiz Questions
- Ask Your Instructor

Part 4: Global Patterns in Physical Conditions

How Earth's shape, tilt, and rotation affect distribution of energy, change of the seasons, and global rain patterns. Drivers, characteristics and locations of Earth's major biomes.

- Climate and Plant Communities
- Differential Energy Input From the Sun
- The Tilt and Orbit of the Earth Create Seasons
- Atmospheric Circulation
- Biomes
- Habitat Conservation
- Summary of Part 4
- Quiz Questions
- Ask Your Instructor