

Universal patterns in biodiversity

This project provides an opportunity for a student to develop skills that are applicable to a wide variety of careers in the biological and environmental sciences including: Data science, ecology, anatomy and physiology, and evolutionary biology.

Project Description

Natural selection has caused a spectacular amount of biodiversity, from flying frogs to legless lizards, yet this evolution is not random. For example, species on distant oceanic islands have evolved independently, but converged to similar body shapes and sizes. The goal of this project is to identify these universal patterns in biodiversity using museum specimens of lizards and frogs. The student will measure the body traits of the specimens and then build, using the R statistical programming language, genetic trees of evolutionary relationships to identify universal patterns in biodiversity.



Project Goals:

- Identify relationships between the evolution of species across the planet.
- Measure the morphology of a wide range of reptile and amphibian taxa.
- Estimate rates of evolution and morphological convergence using sophisticated statistical tools.

Student Responsibilities

- Use and learn morphological measurement tools and programs to quantify external body phenotypes.
- Create a database of trait measurements that is linked to evolutionary phylogenetic trees.
- Use and learn basic methods in R statistical programming and database management.

Location

Temple University, Center for Biodiversity, SERC, Main Campus, Philadelphia
(VU students may choose to work remotely from Amsterdam)

Supervisor Information

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