

# Biology Seminar

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## Embracing the complexity: phylogenetic approaches to studying plant diversity



Wednesday, January 18, 2023  
12:00PM PST | HCK 132

The study of systematics integrates diverse fields of biology including taxonomy, computational biology, genomics, and natural history collections. My research uses these approaches to address fundamental questions about the evolution of tropical plants. In this

seminar, I will discuss two major research areas: (1) What processes govern the generation and distribution of tropical biodiversity and (2) are seemingly convergent morphologies produced through similar anatomical and molecular modifications and do they perform similar functions? In recent work, I inferred the previously recalcitrant relationships of a rapid and recent Andean plant radiation (*Bomarea*, Liliales), and used these relationships to demonstrate how geological perturbations like Andean uplift shaped the origins and movements of species in a biodiversity hotspot. I have also found that underground storage organs of plants have different developmental origins and that these differences mediate distinct organismal relationships to the environment. Finally, I will discuss new tools I am developing to infer generalizable processes mediating biodiversity accumulation across lineages, and to identify macroevolutionary processes that drive convergence across levels of biological organization.