

---

**JAMES O'DWYER**, University of Illinois  
*From Bacterial Phylogenies to Ecological Complexity*

Macroecological patterns are aggregated over large numbers of individuals, and often display a kind of universal behavior across different systems, independent of differences in their underlying ecological processes. Physicists benefit from several principles which can underly universal behavior: for example, laws of large numbers. Can we identify similar principles in ecology, and understand which phenomena are universal and which are more contingent on mechanism? In this talk I will put these questions in context, and present new models and data which shed light on when and why ecological systems display emergent patterns. The final part of the talk will focus on what these patterns can tell us about the complexity of ecological systems.