The PHI BETA KAPPA Society

VISITING SCHOLAR PROGRAM

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PUBLIC LECTURE OFFERINGS

WHY TEACHING AND UNDERSTANDING EVOLUTION STILL MATTERS

Evolution remains a controversial topic. 2025 is the 100th anniversary of the 'Scopes Monkey Trial' (the basis of the play and movie "Inherit The Wind"). That case was the most famous challenge to the teaching of evolution in public schools in the United States. Our country has advanced since 1925: we are in the 'age of genomics,' where the DNA of many species is rapidly being sequenced, revealing the secrets of how life evolves at the molecular level; gene-editing tools like CRISPR are being used to cure people of sickle cell anemia and other diseases with gene therapy. However, the United States remains woefully behind many other countries in the public's understanding of evolution. I will use tools and anecdotes from my book Explaining Life Through Evolution that covers the evolution of the study of evolution from Aristotle to Darwin and my own research on the Tree of Life to explain why understanding evolution still matters.

THE ROLE OF NATIURAL HISTORY IN THE AGE OF GENOMICS/NATURAL HISTORY IN THE 21ST CENTURY

As a natural history curator and phylogenetics, I study the Tree of Life (the depiction of the evolutionary relationships of all life on Earth) and travel to many countries to study vertebrate life and Earth history. My lab uses morphology (anatomical features) and DNA to reconstruct the relationships of fishes, which are the vertebrate group from which tetrapods (birds/reptiles, mammals, amphibians) evolved and remain the mostly poorly studied group of vertebrates. One example study I will present is the convergent evolution between Devonian fishes like Tiktaalik and a recently discovered blind cave loach. Using kinematics/3D microCT scans/and genomes, we show how these animals converged on a similar 'hip' morphology as an adaptation to walk. I will also showcase my natural history work describing new species to science and working with local collaborators to save natural places in the Galapagos, Madagascar, Indonesia and many other countries.

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CLASSROOM DISCUSSION TOPICS

1. **NAVIGATING ACADEMIA: FROM UNDERGRAD AND GRAD SCHOOL TO BEYOND**
   Learn how to successfully navigate the path from undergraduate studies to graduate school and beyond. This discussion will cover strategies for applying to graduate programs, securing research positions, obtaining grants, and work/life balance.

2. **SCIENCE COMMUNICATION**
   Discover how scientific communication is important across all fields. This discussion will examine strategies to build bridges across academic disciplines (even for undergrads) at a time when many people feel siloed in their departments