



## **2010-11 OCEES Science Seminars at Ohio University**

**THE OHIO CENTER FOR ECOLOGY  
& EVOLUTIONARY STUDIES AT  
OHIO UNIVERSITY presents.....**



# **OCEES DARWIN LECTURE**

**November 4<sup>th</sup> Baker Center Theatre 4 pm**

**Dr. David Hillis will present**

***“Applications of the Tree of Life”***



Dr. Hillis will discuss progress in understanding the evolutionary history of life, and will focus on some of the many practical applications of this information. Some of the applications he will discuss include fighting emerging diseases, developing new vaccines, conservation applications, and developing new tools to increase public access to information about biodiversity.

[Dr. Hillis](#) is the Alfred W. Roark Centennial Professorship in Natural Sciences at the University of Texas, a previous MacArthur Fellow and a member of the American Academy of Arts and Sciences the United States National Academy of Sciences. A leader in developing the field of bioinformatics and phylogenetic analysis, and has co-authored *Molecular Systematics* and *Life: The Science of Biology*, one of the leading college introductory textbooks on biology. Dr. Hillis has served as President of the Society for the Study of Evolution and the the Society of Systematic Biologists. At the University of Texas, Dr. Hillis has served as Director of the School of Biological Sciences and the Director of the Center for Computational Biology and Bioinformatics. He also owns and operates the Double Helix Ranch, where he raises Texas Longhorn Cattle.



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# OCEES KITZMILLER LECTURE

May 4<sup>th</sup> Baker Center Ballroom Noon

**Dr. Richard Lenski** will present

**“Evolution in Action: *Bugs and Bytes*”**



Most of us discovered evolution as children visiting museums and seeing the fossil remains of extinct organisms from long ago. Today biologists use the fact of evolution to make sense of the similarities and differences in the genomes, physiology, morphology, and behavior of organisms. Evolution is often thought of as something that happened in the past, but evolution is also an on-going process that is easily observed. I will show you experiments on evolution in two different realms - bacterial (bugs) and digital (bytes). Over 20 years ago, I started a simple experiment with 12 identical populations of *E. coli*, and these bacteria have been evolving in my lab for over 50,000 generations. We have been watching them as they evolve both in their outward phenotypes and underlying genomes. More recently, I have joined a computer scientist, a philosopher, and a physicist to study

artificial life that evolves inside a computer. These digital organisms are programs that replicate, mutate, compete, and change over time. Complex functions have evolved that require the coordination of many instructions, and we have studied each step along the way to see how these functions arose. Worldwide research is turning to experimental evolution in both biological and computational realms and I will briefly highlight other interesting findings as well.

Dr. Lenski holds the Hannah Distinguished Professor of Microbial Ecology in the program in Microbiology and Molecular Genetics at Michigan State University. He is a fellow at the American Academy of Microbiology and the American Academy of Arts and Sciences. A previous MacArthur Fellow, Dr. Lenski was elected to the U.S. National Academy of Sciences in 2006. With his expertise in evolution he co-founded the NSF Science and Technology Center for the Study of Evolution in Action. Known as the BEACON Center it focuses on applied and experimental research on evolutionary dynamics.

See [www.ocees.ohio.edu](http://www.ocees.ohio.edu) for OCEES info