

**BIOLOGICAL & BIOMEDICAL  
SCIENCES  
RESEARCH SEMINAR SERIES**

# **Energy equivalence rules ecology**

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**April 15, 4:00pm** (EDT)

**Irvine Hall 159**



I will present the newly formulated Equal Fitness Paradigm (EFP) as a unifying theoretical framework to understand ecology, evolution and biodiversity based on universal constraints and tradeoffs in biomass allocation to life history and demography. The EFP posits that all species are approximately equally fit when populations are at steady state, because all species allocate the same quantity of energy,  $\sim 22.4$  kilojoules/gram/generation, to production of surviving offspring. The EFP is necessary for the origin and persistence of biodiversity. The EFP links patterns and processes across levels and scales of biological organization providing new insights into: 1) the life history and dynamics of organisms, 2) trophic energetics and red queen coevolution of species in ecosystems and 3) human ecology and the origin of the Anthropocene.

The talk will also  
also be broadcasted  
on Teams:



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