



# Edmondson Endowed Lecture

## Biology Seminar

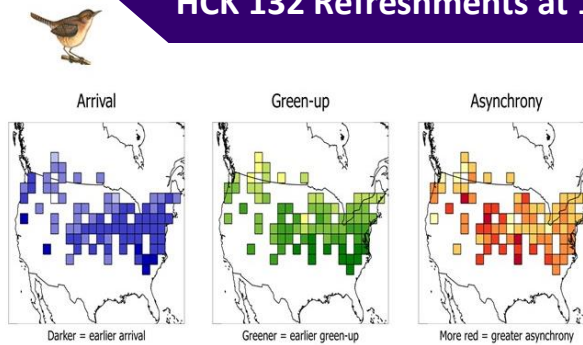
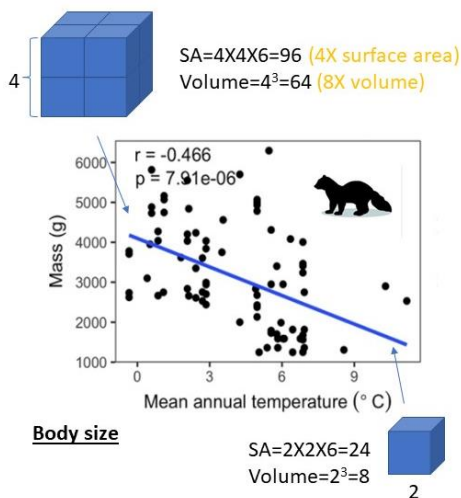
By: Dr. Robert Guralnick

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<https://sites.google.com/site/robgur/>

### Data intensive approaches to examine universal responses to environmental change

Friday, February 23, 2017 | 12:00pm  
HCK 132 Refreshments at 11:45am



Phenology asynchrony

Meta-analysis consistently show ubiquitous responses to climate changes, along three primary dimensions: species distributional, phenological and phenotypic changes. Broad-scale examinations of these changes using reproducible data sciences approaches offers unique opportunities to examine key questions in the same empirical framework. My talk will present two case studies, covering two of three “universal responses”. The first study combines satellite and citizen science data to estimate rates of change in phenological interval between spring green-up and migratory arrival for 48 breeding passerine species across North America. Here I show that birds do adjust their arrival dates, however in 9 of 48 species, those rates do not keep pace with rapidly changing green-up. Across all species, the interval between arrival and green-up increased by over half a day per year. The second study focuses on Bergmann’s Rule and uses new ways to aggregate mass data for nearly 1000 bird and mammal species to examine intraspecific relationships. After showing very weak signal for Bergmann’s Rule based on those data, I dig deeper into those results in order to show that there is a trend for species in colder and wetter climatic niches to show stronger intraspecific climate relationships. I also show that more climatic factors doesn’t necessarily change the story about how well climate predicts body mass within species. These two vignettes show the power of data-intensive approaches to examining broad scale responses to climate and climate changes.