

FALL 2018, 3 CREDIT HOUR (S/U)  
ZOO 5500, CRN: 15364 and ECOL 5500, CRN: 15367

## **“Quantitative analyses of field data”**

**(or in other words, data that is rarely normal, rarely balanced, and often with lots of heterogeneity)**

**Instructor:** Dr. Corey Tarwater, Dept. of Zoology and Physiology

**Meeting Times:**

**August 22nd - 24th, 27th- 28th:** 9am – 3pm (with lunch break). Note that this is the week before the semester begins (semester starts Aug. 29th).

**During the fall semester:** 1 hr/week during the semester with the time and day TBD depending on everyone’s schedule.

**Prerequisites:** Must be a graduate student that has own data that needs to be analyzed. Must have some exposure to using the Program R.

**Overview:**

We will have an intensive week at the end of August where we learn different analytical methods. The rest of the semester, each student will work on their own project. The project includes writing a one paragraph Introduction, Methods, Results, and a one paragraph Discussion. During the semester, we will meet weekly to go over issues associated with your own data analysis and to provide feedback on projects.

We will cover generalized linear models, generalized linear mixed models, generalized additive models, generalized additive mixed models, and zero-inflated/altered models. When learning these models, we will discuss different error structures (binomial, Poisson, beta, negative binomial) and link functions, how to deal with heterogeneity (random effects, variance structures, temporal and spatial autocorrelation), and model selection techniques. All analyses will be done in the Program R.