MBIO 691H: Ecological Multivariate Analyses
Spring 2020
Instructors: Drs. Megan Donahue and Lillian Tuttle
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Meeting time: Fridays, 10 – 11:30 am
                  HIG 132, Marine Biology Program Conference Room

Course Plan - Syllabus
This seminar focuses on multivariate analyses and implementation with R. We will have weekly discussions on various methods based on either peer-reviewed literature or the Numerical Ecology in R 2nd edition by Bocard, Gillet, and Legendre (2018). Example code from reviewed articles and book chapters will be examined. The purpose of this course is to familiarize you with these techniques so that you may start implementing them in your own research.

Date	Topic
Jan 24	Introduction
Jan 31	Exploratory Data Analyses and Transformations – Chapter 2
Feb 7	Distance matrices and Diversity - Chapters 3 and 8
Feb 14	Ordinations – Chapter 5 and 6
Feb 21	Microbiome community analyses Part I
Feb 28	No class
Mar 6	Microbiome community analyses Part 2 *Paliy et al. (2016)*
Mar 13	Structural Equation Modeling – observational studies *Grace et al. (2010)*
Mar 20	No class - Spring Break
Mar 27	Structural Equation Models – experimental studies *Alsterberg et al. (2013)*
Apr 3	PB-GJAM (Predicting Biodiversity with Generalized Joint Attribute Modeling) *Clark et al. (2017)*
Apr 10	Cluster Analyses – Chapter 4 *Oliver et al. (2019)*

Apr 17	Multivariate Boosted Regression Trees *Miller et al. (2016)*
Apr 24	Network Analysis *Jiang et al. (2019)*
May 1	Multivariate responses in a generalized linear model framework in R R packages: mvabund, mcglm