EEB 698 - Fall 2019

Ordination Methods, or Analysis of species composition data,

focusing on: non-Metric Multidimensional Scaling and model-based analyses

Instructor: Dr. Philip Dixon

Class: Weds, 1:10 – 2:00 (lecture). Optional computer lab/help: 2:00 – 2:40.

 Both 3121 Snedecor

Reaching me:

 office: 2121 Snedecor,

 phone: 4-2142

 e-mail: pdixon@iastate.edu

 office hours (shared with Stat 534): Th 2-3pm, 2121 Snedecor

Class web site: <https://pdixon.stat.iastate.edu/eeb698>

Topics to be covered:

 Types and characteristics of species composition data

 Traditional ordination:

 Measuring similarity/dissimilarity in species composition

 Graphical representation of similarity/dissimilarity

 how nMDS works

 Interpreting nMDS results

 Response of species composition to environment or treatment (PERMANOVA)

 Model-based analyses:

 Response of species composition to environment or treatment (mvabund)

 Linking traditional and model-based approaches

 Clustering

 Based on similarity

 Based on a model

 Choice of ordination or clustering

 The acronym stew: other approaches

Computing:

 We will use R and R libraries, primarily vegan and mvabund

 Code provided for all analyses

 Will be discussed in the optional computing period after lecture

Other programs, e.g., PC-ORD, CANOCO, and PRIMER, do traditional ordination. Use these if you prefer. Model-based analyses are available only in R.

My expectations:

 You will attend regularly,

 do any assigned readings prior to seminar,

 participate in the discussions, and

 present a 15 min talk at the end of the semester.

The 15 minute presentation will be:

 An analysis of your data using class ideas, or

 A short lecture on a related topic we haven’t discussed.

Syllabus statements: Syllabus statements on academic dishonesty, disability accomodation, dead week, harassment and discrimination, religious accomodation, and contact information for academic issues are in [Syllabus statements](https://pdixon.stat.iastate.edu/Syllabus%20statements.docx)

Additional details for EEB 698:

Dead week: Your presentations will be scheduled during dead week and potentially during the regularly scheduled final exam period.