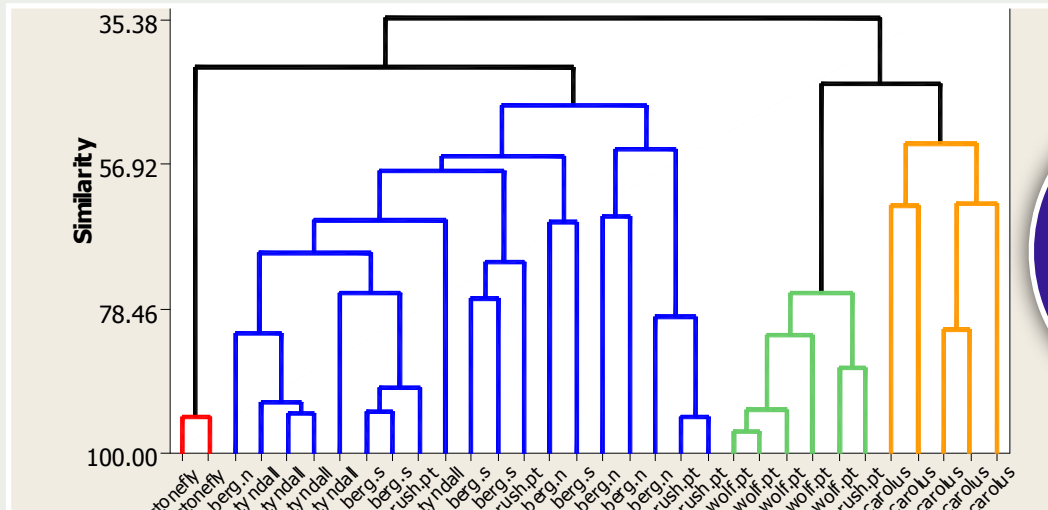


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**NMDS,
Dendograms
and Biplots**

are 3 of the many useful
methods for visualizing
multidimensional data

Untangling Multivariate Relationships

Turn confusion into recognizable patterns

Environmental measurements often are simultaneously recorded as a series of variables or species. Multiple chemicals are analyzed. Multiple measures of ecosystem health are recorded. If statistics are computed on each, one by one, the interrelations among variables, species and locations cannot be seen. Valuable information is lost. Multivariate methods resolve what at first may look like noise into recognizable patterns, providing new insight into the field of study. However, these methods are daunting to many scientists, with acronyms like PCA, CCA or CANOCO, and with unfamiliar terms like varimax rotation and detrended

correspondence. The learning curve seems steep, and useful procedures go unused. UMR covers the multivariate methods of primary interest to environmental science, focusing on what each method is designed to do, when to use them, and when not to. Methods for simplifying data are contrasted with those for establishing connections between and among source and response variables. Capabilities of various software packages are reviewed. Example data sets are analyzed by each student in class. By the end, the choice of which method to use, and how to use it, simply makes sense.



One on One Instruction

Class sizes are kept small enough that instructors are able to work with students during exercises, enabling them to make sense of their data.