

Basic Data Summary and Analysis Module for an Ecology Laboratory Course

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Many contemporary topics in ecology are highly quantitative or use of large-scale (temporal or spatial) datasets (i.e., ‘big data’) to examine ecological patterns and processes. Experiential learning that incorporates large datasets requires students have an understanding of reasonably simple and effective approaches for data summary and analysis. In addition, similar approaches can be used to more efficiently summarize small datasets. While statistical programs, such as R, are likely more powerful, Microsoft Excel can be an adequate tool that is familiar to students. I present a module covered at the beginning of a 2nd year undergraduate ecology course. The module is designed to introduce students to data summary and analysis techniques used throughout the course. The focus is on several broadly useful techniques in Excel for data summary and analysis: basic excel functions, pivot tables, the ‘vlookup’ function (for relating databases), etc. The main focus is as an introduction to the laboratory portion of the course, but a secondary goal is to introduce concepts of data quality control for performing ecological research. The module ends with a summary for how to use some of these techniques for calculating student grades in the class.

Keywords: data analysis, Microsoft Excel

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