

Statistical Ecology Guidelines for Lab Projects

The purpose of the project is to give you practice in the process of analysis (from data entry to hypothesis testing) or to develop detailed knowledge of a particular statistical technique that is useful in ecological or evolutionary research. Each student will be required to present their project to the class (15 minutes). A short report (i.e., ≤ 5 pages + output or annotated references) summarizing the approach and major results will also be required. Listed below are some guidelines that should help you get started. **Topic for semester project must be approved by Oct 19th, and the report is due Dec 7th.**

Subject: Should be a topic that is relevant to students in behavior, ecology and evolutionary biology. Basically, anything goes within that constraint. **The best use of your time will be to analyze some or all of your own data.** For those of you just starting out, you have several options. 1) Going out and doing a "quick and dirty" study is fine (say a weekend's worth of sampling). The question should have some relevance (i.e., don't make it frivolous). 2) Talk to your advisor and find out if he/she has any data sets that are gathering dust and in need of analysis (note: your rank in your lab will rise in direct proportion to how long the data have remained unanalyzed). 3) Retrieve data from the literature and analyze them with a unique question in mind or a different (better[?]) technique.

If none of these options are appealing/feasible, you can do a project on a specific technique that is useful in the disciplines listed above. For this option, you should refrain from choosing a technique that has been discussed in detail in lecture.

Suggested Content for Data-Oriented Projects: Your presentation should have most of the following elements

Research Question(s) - basically what is the biology and science that motivated the analysis.

Sampling Procedures - How was the sampling protocol decided upon.

Tests - how you tested the hypotheses generated by your research questions (note: for this you should present evidence that you were aware of assumptions). Why did you perform the tests you used?

Conclusions

Suggested Content for Technique-Oriented Projects:

Background: type of questions or data structures where the technique is applicable

Example(s): detailed, step-by-step (from the literature or ones you contrived), include assumptions,

Practical Advice: References? Software? Caveats?

General Comments:

1) your project does not have to involve hypothesis testing; that is, if you feel it is appropriate, a detailed set of graphical analyses can suffice if it answers a god set of questions

2) The project should have a reasonable level of complexity - a presentation of nothing more than a two sample t-test might be a bit on the lean side. Alternatively, the material should be simple enough to be understood and clearly presented in 20 minutes.