

## Project Report guidelines

The project reports can include several different formats: a data analysis, a discussion of an on-going controversy, a discussion of a method not studied in class. The latter will be the more typical form, and that is the format we will discuss.

A method not discussed in class will usually be closely related to a method that we covered in class. The first part of your report should introduce the data and model that precipitated your interest in your project. You will find that describing the data and the model in full detail is tedious—students often leave out important information and notation. Be patient and get all the details down—this will make the rest of the report that much easier.

You have the option of introducing specific data sets at this point. In a typical academic paper, the motivating example would be introduced later, but sometimes discussion of a specific example can help explain why you became interested in a method or application in the first place. Use your discretion.

Having introduced the model, you can briefly discuss estimation and inference for the model, and describe the model's limitations. I would not recommend carrying out an analysis at this point; the analysis can be saved for later when contrasting results from the various methods you are exploring. I appreciate that your data may be sufficiently different from the motivating example (e.g., you may have nominal rather than ordinal categories) that a direct comparison of methods may not be possible.

With the motivating model introduced, you can now discuss the related methods you plan to explore. The methods should be introduced in about the same level of detail as used for the introductory material. Deviations from the introductory material could include different models, different test statistics, etc. I do not want you to go into a great deal of elaboration on test derivation, but some modest attempts at deriving important or critical results should be made. E.g., if a method for testing association corrects for ties, then the new formula should not simply be presented as a fait accompli; instead some insight into the derivation of the formula should be made.

At this point, you can present your data set. Finding a data set with interesting subject matter is difficult; finding one with interesting subject matter, and an interesting analysis is even harder. For this reason, I am not placing a premium on the data set—you can make up the example and the data itself in order to expedite your analysis. The purpose of the data set is to highlight your new methods—an exhaustive analysis is not necessary.

If you construct new code, I hope to place it on my homepage. I have pretty loose standards for documentation, but it would be useful if you included a modest header describing your function/source code. New code should be included in an Appendix.

Be sure to write a brief conclusion summarizing your analysis. Many times, students simply present an analysis and then the reader is left to draw their own conclusions. The analysis is only a means to an end, though it is easy to lose sight of that in stat classes that focus so heavily on analysis.