1 Sta242/Env255 Group Project Guidelines

We will have a group project with a poster presentation, worth 20% of your final grade. You may work in groups of 2-3 people. Your project should be a complete statistical analysis. Your goal is to produce a poster that outlines a question to be studied, performs an appropriate statistical analysis, answers the questions, and provides conclusions and limitations of the analysis. The presentation should stand on its own, and should not require previous knowledge of the data set.

The poster sessions will be held in two two-hour sessions on two evenings during the last week of class (room and time TBA). Poster judges will include SOE and Statistics faculty. Each student will be expected to critique 3 posters as part of his/her poster presentation grade.

1.1 Choosing a Dataset

The dataset may already exist, or you use your own data. If you are having trouble finding an interesting dataset check the course website for a list of datasets or check with your advisor, a favorite faculty member, or myself, but do not wait until shortly before the project is due. If possible, choose a dataset which may be useful for another class project. Project Analysis Plans are due March 9th. This entails a written statement about what data you plan to use and how it was collected.

The dataset should have at least 30 observations and 10 to 20 variables. It must represent a sample, not a population. The variables should include qualitative (nominal) variables (such as type of species, gender), quantitative discrete variables (ex. years of education, number of foreign languages spoken fluently), and quantitative continuous variables (ex. height, weight). Also include a copy of the dataset with labeled variables. If your dataset is large, handing in a subset of observations is acceptable.

1.2 Analysis Plan

A plan of analysis is due by Friday, March 9th at 5pm. It is worth 5% toward your project grade. The plan will be 1-2 pages (max) with the following components.

- Project title
- Description of the data you will use. Where found? Number of observations? How collected? Units of measurement? How does the data relate to the research question? What role will each variable play in exploring the general research question? Give the outcome (dependent, response, Y) and predictor (independent, X) variables you will use to answer the questions.
- Basic features of the data you will use. A set of scatterplots (pairs plots are OK), histograms, and/or boxplots showing general features of the data. Summary stats are encouraged as well.
- The general questions you will answer, and hypothesized answers (i.e. what do you expect to see?).
• The statistical method(s) that you will use to help answer the question.

• What results from these specific statistical methods are needed to support your hypothesized answer?

• Attach a copy of the dataset with labeled variables or you may provide the link to the web address where the data is located. If your dataset is large, handing in a subset of observations is acceptable.

1.3 Poster

The poster should contain several parts.

1. An introduction to the question to be studied. You should describe the overall question that you will be studying.

2. A description of how the question will be approached. In this portion, you will need to describe the data that you will use to answer the research question. You should also describe how the data relate to the research question.

3. A description of the analysis performed. Here, you should describe the analysis that you did. There should be enough description so that a reader familiar with the techniques you use can understand the analysis (or could repeat it). Describe hypotheses and give test statistics, p-values and interpretations.

4. Plots/graphs containing supporting documentation— important annotated computer output to back up the analysis and conclusions (i.e. your final model with SE’s and summary measures)

5. A summary of the conclusions. These conclusions should be stated in words relevant to the research question. You should also have thought about the implications of your conclusions.

This should be written so that a non-statistician can understand your results and conclusions. Your poster should be constructed with 8.5 by 11 sheets that address the above parts (12-15 should be sufficient). Students have found that using Power Point is useful for the project. These will be submitted electronically and on hard copy, so that grading of the written analysis can be conducted prior to the poster session. (What you turn in prior to your presentation should be suitable for a poster presentation, i.e. large fonts that are visible from 4 feet away; avoid paragraphs of text.) You may arrange this information on poster board and illustrate it as you like for the final presentation.

1.4 General Poster Tips

A poster session is a presentation where materials such as maps, photographs, graphs, charts, and/or tables are posted on a display board along with brief textual summaries of the work. Ideally, a well-constructed poster will be self-explanatory. Successful poster presentations are those which achieve both coverage and clarity.
Coverage: Have you provided all the obvious information? Will a casual observer walk away understanding your major findings after a quick perusal of your material? Will a more careful reader learn enough to ask informed questions? In addition to title/author and abstract, most successful posters provide brief statements of introduction, method, subjects, procedure, results, and conclusions. Ask yourself, "What would I need to know if I were viewing this material for the first time?" and then state that information clearly.

Clarity: Is the sequence of information evident? Indicate the ordering of your material with numbers, letters, or arrows when necessary. Is the content being communicated clearly? Keep it simple. Place your major points in the poster and have the non-essential, but interesting, sidelights for informal discussion. Be selective. Your final conclusions or summary should leave observers focused on a concise statement of your most important findings.

Other tips:

Each poster display should include a lettered sign giving the title and the name(s) of the presenter(s).

Extensive, imaginative use of captioned illustrations, photographs, graphs, or other types of visually appealing material is an extremely effective mode of communication in a poster presentation. However, lots of clip art does not necessarily make a good presentation.

People attending a poster session are free to move about from poster to poster and this does not allow time for people to read excessive text. If extended text is needed, text should be limited to a couple of double-spaced, 16-20 point text. This will allow lettering to be read from several feet away.

Be sure to provide clear labels for each section of your presentation.

1.5 Grading of Projects

Each group will be given 10 minutes to make an oral presentation of their poster to the graders. Grading of the project will take into account the following areas:

Content What is the quality of research and/or policy question and relevancy of data to those questions?

Exploratory Data Analysis Have basic exploratory procedures (graphs, summary stats) been used? Unique features of data identified?

Correctness Are statistical procedures carried out and explained correctly? Have diagnostic checks of the models been performed? Has thought been given to the sensitivity of results to particular data points or to particular assumptions? Are measures of uncertainty given?

Presentation What is the quality of the statistical presentation, writing and explanations?
Creativity and Critical Thought Is the project carefully thought out? Are the limitations carefully considered? Does it appear that time and effort went into the planning and implementation of the project?