

Stat 849, Fall 2006

Final projects

Due: December 18, 2006

The final project consists of either applications of the statistical methodology covered in lectures to a dataset of your choice or review of a paper from the provided list at <http://www.stat.wisc.edu/~st849-1/private/finalprojectpapers.html>. As your final output, a **written report** and a **poster presentation** are required. You should know what exactly you will be doing by now.

The written report and poster presentation should include the following:

- Background on the scientific question of interest. This section should include answers to the following and similar questions: What is it that you are trying to answer? What is the purpose of this investigation? If you are working on a dataset, where do the data come from? Why are people interested in this dataset? What are the dimensions? What types of variables are there?...

If you are reviewing a paper, this section should discuss the topic of the paper and its importance, possibly including some relevant background literature.

- Background on statistical methodology. In this section, explain the type of statistical methodology you are using and why you think it might be appropriate. Mention explicitly how the statistical methodology will be applied/implemented. Discuss the relevance and appropriateness of the methodology.
- Present your results. This section should include all your analysis. It is extremely crucial that you discuss your results. Do not just present raw R output, i.e., a bunch of numbers, but be clear about what the implications of your analysis are in terms of the scientific question you are trying to answer. Possibly compare alternative methods. When possible, present your results with simple tables and well labelled graphs. This is the core of your project, and you have to make the reader believe that you have done a good job and are providing insights/answers on a well defined scientific question.

If you are reviewing a paper, this is the part where you present the main result in the paper and fill in the gaps in the corresponding proofs. You should try to make the presentation of the result as simple as possible. Possibly reproduce numerical analysis (simulations or data analysis) presented in the paper. If you can think of a

relevant aspect that is not covered in the paper, investigate it either by simulations or theoretically. If the paper provides a software, you can think of applying the presented method to a dataset that is not used in the paper.

- Discuss possible limitations, extensions, and improvements. This is the section where you can familiarize yourself with relatively advanced topics that we did not cover in class. For example, if you conclude that despite all your efforts, the statistical methodology that you use does not seem to produce interpretable results, you can discuss it here and suggest alternative methods and analysis as future work.

General comments.

- Spell check your final document!!! If there are many typos and grammar errors, that indicates that you did not spend enough time on writing it. (Many of you had typos on the project proposals!)
- Your final document should tell a story and it should be easy to read. This is not like homework assignments where you are giving answers to posed questions. You should try to have sections with names INTRODUCTION, METHODS, RESULTS, CONCLUSIONS, and DISCUSSION. The reader (I) cannot spend hours trying to figure out what is it that you are trying to do and what your conclusions are. Make sure every sentence you write conveys a clear message and the flow of the text is natural.
- The final report should be typed, handwritten reports are unacceptable.

Poster presentation. On December 20th 2004, we will have a poster presentation session where you will have the chance to present your work to me and to the Department of Statistics. A poster is a way of communication that is in between a paper and an oral presentation. If you have never prepared a poster before, check out www.siam.org/siamnews/general/poster.htm or <http://www.engconfintl.org/poster.pdf> or <http://www.aug.edu/pkp/000120Myers/>. Your poster does not need to be fancy, it should be comprehensive, clear and easy to follow.

Both the final project report and the poster presentation are due December 18, 2006.

You are also required to write 1/2-1 page critique of someoneelse's poster (to be determined at the poster session). This is due by 10:30am on Dec 19, 2006.