

Boston University, Spring 2010

Final Project

(Due Thursday, April 29)

In lieu of a final exam for this course, you are asked to complete a final project. The grade for this project will contribute 30% to your overall grade for the course. Simply put, you are asked to select an advanced statistical method(s) of interest to you, above and beyond what we've seen in this course (i.e., not explicitly covered lectures or homeworks), and research it in the literature, explore it thoroughly in a numerical fashion, and summarize what you've learned.

A brief outline of what is looked for in this project follows.

1. As the total possible credit for this assignment is roughly three times that of any one homework assignment, you should use that as a *rough* guide in judging the depth and magnitude of what is being asked here.

The space of possible projects is quite open. For example, there are any number of topic areas that we have chosen to skip in class, or have covered only briefly. These include wavelet-based estimation and testing, specific classes of reproducing kernel Hilbert space methods, model aggregation, specific classes of neural networks, and more.

You are encouraged to choose a topic that complements your chosen field of research well. However, I do not wish to simply see a report on your recent research.

2. The end product of your work should be a final report (roughly 10-15 pages, including figures and/or tables). This report should be reasonably formal in nature (consult a journal of your choice for standard organization of technical papers, if you are not familiar with this style). Included should be
 - (a) One-paragraph abstract, providing an overview of what you have done.
 - (b) Introductory section, providing any background on the topic area that you feel a general reader may require. [Note: Do **not** simply assume that the instructor is intimately familiar with your topic area.]

- (c) Section explicitly dedicated to description of the methodology with which you chose to work.
- (d) Section in which you present and discuss the numerical examples you have chosen to use for exploring your methodology. Ideally, these might include a combination of a well-designed simulation study and an application to real data, with appropriate comparison to any logical competitors we may have covered in class.
- (e) Conclusions.
- (f) Appendix containing any relevant code, figures, and tables, all labeled and commented appropriately.

IMPORTANT:

As a precursor, I would like to see a short project “proposal” from each person, by Monday, March 29. This should be no more than a page in length, describing to me the topic you have selected and, very importantly, citing a reference or two from which you will be working. I will then plan on returning these to you within a week afterwards, and working with you to modify any details as necessary. The end result should be that you have roughly three weeks during which you may work on your project.