Final Exam Project Assignment

Spring, 2018

Project Proposal Due: May 28, 2018
Final Project Report Due: June 25, 2018

50% of your course grade will depend upon successful, on time completion of the Final Exam project. The project can be done as a team of no more than 2 student members and each member of the team will receive grades in equal proportion in this final project.

The Final Exam project consists of three tasks:

(i) **Project Proposal** (one page): One page project proposal is due by the above stated due date. The proposal should include at least the following items:

(a) Title of the proposed project;
(b) Name(s) of the team member(s); and
(c) Description of proposed project: Spell out briefly the data source, the main goal of the study, and your basic intended Bayesian statistical methodology.

Pick a topic and associated Bayesian statistical methodology that interests you (preferably on a topic that you learned in this course and/or related to your own research work) and then execute and analyze the results of a study using **Markov Chain Monte Carlo (MCMC)** methodologies intended to increase your understanding of the subject.

(ii) **Seminar Style Project Presentation Slides** (PowerPoint): No more than 10 pages PPT slides to summarize the main contribution of your project. The presentation slides should be submitted along with the final report.

(iii) **Final Project Report** (15 pages): The Final Exam Project Report should result in a thorough but concise, professional quality technical report of not more than 15 pages (not including listings of raw data, computer output and code).

After experimenting make a thorough but concise report of your entire investigation. Include at least:
1. An Executive Summary (goals and major findings)
2. A Description of Data
3. Appropriate Bayesian Statistical Analyses of the Data (use graphics as well as numerical summaries)
4. A Statement of the Subject Matter Implications of Your Study, and
5. A Discussion of Further Questions Raised by Your Study (that might be investigated in a subsequent experiment).

Additional information

Simply attaching a ream of computer printout is not what is meant by including an appropriate statistical analysis. The main body of the report should include only the end products of any statistical calculations (but example calculations should be included in an appendix so your reader can see how your end products were produced).

This project need not be expensive nor require a huge time investment in data collection. But it does need to show careful planning, good logic and the Bayesian analysis and associated methodologies discussed in the course. Some part of your instructor's reaction to your project will also inevitably reflect the originality of your topic, so choose it with some care.

Team average scores for these projects will be assigned according to the following schedule:

Proposal 10%
Executive Summary and Table of Contents 5%
Description of Data 10%
Presentation/Visualization of Raw Data 10%
Bayesian Statistical Analysis 20%
Subject Matter Implications and Question for Further Study 10%
Professional Appearance of Report 15%
Seminar Presentation slides: 20%