Stat664 Project due April 21

Plan an experiment to solve a problem, or at least to recommend some useful directions to future investigations that will lead to solving the problem. Execute the experimentation, collect and analyze the data from the experiment, and finally prepare a report describing/discussing all stages of the project. You have your choice to do the project by yourself or team up with other. The maximum team size is four. The grade will be assigned equally to all members within a team. If you decide to form a team, any coordination (or dispute) is to be handled strictly within the team. The instructor is not responsible for any dispute. Think about this: every team member is a proud co-owner of your project. Talk it out among yourself. You are encouraged to discuss about your project idea with the instructor in early April.

The following discussions are necessary in your report.

1. A clear statement of the problem with sufficient elaborations.

2. Specify the initial list of factors under consideration and the response variable(s). Elaborate on the explanation of the final choices of factors and levels. You MUST have to plan an experiment with at least two factors of primary interest. For nuisance variables, you may either include them in the experiment as block factors or exclude them but record the values of these nuisance variables during the course of experimentation and consider them as concomitant variables (or covariates) in the analysis. Be prudent about using suitable resources. You do not want to consider them all so to make the experiment too big to handle (say over 100 runs). You may control some of the factors (including nuisance variables) for experiment so that they are held constant in the entire course of experimentation. Whatever you decide to do, discuss succinctly in the report concerning your choices.

3. Carefully plan the experimentation schedule.

4. Record any relevant or useful information you deem necessary during the course of experimentation.

5. Analyze the experimentation result using all methods that will lead to useful and important findings. Be sure to include diagnostic checking for your postulated model.

6. Draw useful conclusion. Elaborate on the inference space (that is, the range of the factor space that your findings are applicable).

Use the following format for your report:

1. A cover page.

2. Table of contents.

3. Summary of the project.

4. Main body of the report by sections.
5. Appendices. This may include essential parts of any computer output listings, graphics, or other supporting documentation. Do not throw in too many figures or tables in the main body of the report as they will interrupt the ‘flow’ of the report. Insert only few key graphics and/or tables in the main body.

6. Use LETTER size (8½” × 11”) papers only.

You might find the following web page (and links thereof) useful to get head start:

[Favourite Experiments: An Addendum to What is the Use of Experiments Conducted by Statistics Students?](#)

However, you are not to copy any of the experimental results without actually planning/executing/analyzing experiment of your own. They’re just pointers to some ideas for your project.