Instructions for Mini Project Reports. Due in Lab Monday, October 18

Format:

1. **Cover Page** including (i) Title of project, (ii) Your Names, (iii) Date, (iii) Original Work Statement as in Project Proposal, with the following statement:
   
   We, the undersigned, certify that we acquired the data in the manner we have described, that we did the data analysis reported herein and all associated statistical work, and that we prepared the final report based on our own work.

2. **Executive Summary** 1 page explaining the purpose of your project, how you carried it out, what data you used, what your major finding to date have been, and how the finding relate to the question of interest. This summary is to be written in a form that could be read by an educated person with a minimal knowledge in statistics.

3. **Statistical Summary** Up to 5 pages including selected computer output from preliminary analysis (yes, I want you to do some analysis and report on them even if they are just exploratory). This section should include:
   
   - What question did you set out to answer?
   - What was the population of interest? What was the population actually studied?
   - What variables did you study?
   - Exactly where did you find your data (e.g., give a URL or other detailed sources)? You may use the links from the course webpage http://www.stat.psu.edu/ sesa/stat460/links.html to find your data. I suggest: http://lib.stat.cmu.edu/DASL/ or http://www-unix.oit.umass.edu/stat-data/statdata/index.html or http://lib.stat.cmu.edu/ since there are different search criteria. If you have data from other classes, research, etc... you think would be appropriate for this class you may use that too. I want you to have fun with this so it’s your choice!
   - Present a summary of your statistical analyses to date. This is going to have EDA, and for most of you t-tests and ANOVA. However, you are free to do other analyses you think are appropriate and you know of. Creativity and originality are welcomed and rewarded, but so is accuracy.
   - Describe those analyses you would hope to carry out were you to return to the project at the end of the semester.
   - What are you findings? How do they relate to the question of interest? Use technical statistical terminology, interpreting the results of your analyses to date. Take care with the interpret of any formal inferences.

4. **Sealed Evaluation Letter** Each team member must turn in his/her own sealed letter with the project report. It it, you should explain whether all members of the group contributed fully to the project and the preparation of the report as planned. The letter should include your name, the title of the project, and your signature.
Grading Scheme (100 Points)

- Cover Page (10 points)
- Executive Summary (15 points)
- Statistical Summary (40 points) – based on elements above
- Sealed Evaluation Letter (10 points) – to be done on an individual basis.
- Quality, Originality, and Effort (25 points)
  Including following instruction; the nature of the question; innovative features and sources for the data gathered; thoroughness of analyses; quality of organization and exposition.

General Data Analysis Approach

Even though different statistical problems may look distinct on the surface, they usually can be tackled using a single data-analysis approach. This approach has five main steps, each typically requiring a series of sub-steps. This outline below can be viewed as a general template how to solve data analysis problems:

- Understand the Problem
  1. Background Information
  2. Check the data format
  3. Reflect on the study design

- Identify the Question
  1. Stat the question
  2. State expectations

- Analyze the Data
  1. Identify the relevant variables
  2. Determine the appropriate analysis
  3. Conduct the analysis
  4. Interpret the results

- Draw Conclusions from the Data
  1. Consider results in terms of questions
  2. Evaluate validity of the conclusions

- Summarize
  1. Combine results and conclusions into a summary