**Statistics 6300 - Class Project - 50 points**

Due: Thursday, December 12, 2013

The object of this project is to use multivariate analysis techniques to best analyze real data.

I would like you as individuals or in groups of 2 to select a data set with at least **three** quantitative variables, at least **three groups**, and at least **100 observations**. The groups could be from one grouping variable or by a combination of 2 or more grouping variables. You are then to analyze the data using techniques learned in this class. Once the analysis is done, you will need to write a report. This final report should include at least the following sections:

1. **Introduction**: This should contain a brief description of the study that you plan to explore and why this might be important. This should also include a statement of what hypotheses you plan to test or questions you plan to answer.

2. **Data Collection**: This should contain a description of the population from which the data were collected, the experimental units, the questions asked, how the data were collected, and any problems encountered collecting the data.

3. **Methods/Results**: This should contain a description of how the data were analyzed and the results of the analysis. Plots and tables (if included) should be contained in this section, but the actual computations, tests of hypotheses, computer outputs, etc. ***belong in appendices***. You should also state and check any necessary assumptions. In a regular research paper, the calculations are generally not included. However, for this project, I want you to include the calculations, etc. in the appendices. When you make some conclusion, you should state the conclusion and then report the test statistic and p-value in parentheses.

**For example**: There were significant differences in the mean vectors among the 4 groups (F = 4.57, p = .0236).

4. **Conclusions and Recommendations**: This section should contain your conclusions. This part should contain the answers to the questions or hypotheses presented in the introduction. This should also contain any recommendations for future "research". That is, if a similar study were to be conducted, what changes should be made. This section should also contain any limitations to your study.

You should write this report as if you were going to give this to your boss at work. Poor grammar and spelling are not acceptable and will be penalized. Before you turn this in, read over the report and see if you would accept this from one of your employees. There is no limit to the number of pages. I have seen very good reports that are only 3 or 4 pages long. I have seen some poor reports that were 30 pages long. You may want to use the writing center at BGSU for help with writing this report.

A one page proposal of your project is due NO LATER THAN TUESDAY, OCTOBER 29. In this, you need to describe the data you are going to collect. You need to write the hypotheses you wish to test or questions you want to answer. You also need to indicate from where you will obtain your data. If you are having trouble finding a data set, let me know and I can try to help you find one. I would prefer that you get the data yourself. You can always go to the library and ask for help. You also need to include if you are doing the project by yourself or with another student. If you are going to do the project with another student, you only need to turn in one proposal with both names on it.

If you have any questions about the project, please do not hesitate to speak with me.