Honors Contract Proposal

Data Analysis

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For this honors contract, I will be performing an extensive data analysis for a study that I have been working on with Dr. Kady Schneither of the Department of Mathematics and Statistics. This study has been underway since we first began doing research and collecting data during the Fall 2016 semester. We are finally to the point where we can start analyzing these data and attempt to understand the relationships that exist between different variables. The data we collected were from three classes of undergraduate statistics students. One section of the survey was dedicated to quantifying the students’ position on the fixed/growth mindset scale. We are particularly interested in understanding if growth mindsets in students are associated with better performance in the course. I will investigate the relationship between these variables, as well as others in the data set, using a variety of methods including graphical visualizations, classification trees, and random forests.

This contract will provide me a unique opportunity to work with a data set that I had a hand in collecting. I think that I will learn valuable lessons from this, and gain insights as to what we might want to do differently if we could collect these data again. Where this data set is new, and I am the first one to analyze it, it will have nuances throughout it (like missing values) that I will gain experience dealing with. Most of the data sets that I have worked with in statistics courses have already been optimized for analysis, and are in the proper format and state to use some predetermined method. In this case, there is not a single “right” way to analyze these data. This will allow me to think creatively and critically and try new things. It will also give me good experience deciding which of the many methods I have learned about are useful to apply in a given situation.

The final product for this contract will by a two page reflection and a brief report of my findings from this analysis and some of the more useful graphs that were generated.