ISyE 2028 – Basic Statistical Methods - Fall 2015
Bonus Project: "Big" Data Analytics
Proposal (or Final Report)

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There is an outstanding stereotype on campus that engineering students are generally less physically fit than non-engineering students. This is commonly attributed to another stereotype that engineering students have larger workloads than non-engineering students. I would like to see whether or not these stereotypes hold true. I will collect data to analyze whether or not there is a difference in the amount of time that Georgia Tech students spend doing physical exercise depending on whether or not they have engineering majors. The results will be incredibly significant if they hold true because physical exercise is extremely important for both mental and physical health. Studies have shown that regular exercise can actually increase the size of the hippocampus, which is the part of the brain that controls memory and learning. There have also been studies that have shown that people tend to have much more energy throughout the day when they exercise compared to when they do not. If there is, in fact, a difference in the amount of exercise conducted between engineering and non-engineering students, then it is evident that changes should be made that either encourage or allow students of the respective majors who do not exercise as much as others to do so. The problem I am analyzing is both relevant and has the potential to be impactful.

I plan to gather data from Georgia Tech students of all majors on the approximate amount of hours they exercise per week as well as what their major is. I will collect the data I need by surveying people throughout campus. I feel that this is the least biased way to do so because it will result in the most diverse data sample. If I were to survey people in a certain building or area, for example, it is possible that the students I come across will be more similar. If I chose to only interview people in the CRC, there is a high probability that the majority will be students who exercise regularly, thereby excluding many students who do not exercise as much. Likewise, if I only interview students in the CULC, there is a possibility that I will survey more students who study more often and therefore exercise less. Because of this, I plan to survey students in a variety of places, including, but not limited to, the CRC, SAC fields, CULC, Student Center, College of Business, and Skiles walkway. I will also include a web-based survey to target the remaining portion of students I may not come across in person.

Using the data collected, I will construct two histograms outlining hours spent doing physical exercise for engineering and non-engineering students, and construct a 95% confidence interval that will outline the percent difference in amount of time spent exercising. This will also involve finding numerical measures that best represent each group of data. Much of these calculations will be conducted using R. I expect to see that there is no difference in the amount of time that engineering and non-engineering students spend doing physical exercise because I believe that students who truly want to exercise make time to do so and implement it as part of their daily or weekly schedules. Yet, the stereotypes mentioned above state otherwise, so it will be interesting to see what the results of the data collected and analyzed will be.