Personal Reflection

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DAT 520: Decision Methods and Modeling

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Throughout this course we have been introduced to some statistical methods and analysis techniques that are commonly used to drive evidence-based decision making in organizations of all kinds. With an increasing abundance of data, companies are now more than ever looking for people who can apply these concepts to derive insights and provide information that might increase revenue, lower costs, and mitigate risks. I am hoping that between this data analytics Master’s program and future professional opportunities to expand on the skills that I develop in this course and others, I will eventually find myself in a position where I am using statistical programming to guide some sort of business or operational strategy based on data. It is likely that this would include evaluating alternatives in decisions under uncertain conditions. The concepts and techniques that have been covered in this course have provided a foundation of decision science understanding that will be useful as I pursue a career in data analytics.

The aspect of decision analysis that has most resonated with me is conditional probability and Bayesian statistics. Prior to this course, I had heard of the differences and importance of Bayesian statistics, but my studies in statistics were all based in frequentist statistics concepts and I knew nothing about conditional probability. I was at first unable to solve the conditional probability questions in Problem Set 3. However, I believed that I needed to spend additional time to better comprehend the formulas and examples. Once the solutions were posted and I saw the calculations that were involved, it started to make more sense to me. Although there is still a lot more for me to learn in this area, my knowledge has grown since I first attempted the problem set. The way that I now think about conditional probability problems is that when the assumptions change, the probabilities are due to change because they are based on a completely different sample of the population.

As my studies of decision science transition to more-or-less self-directed, Bayesian statistics is the first topic that I plan to dive into further. I have purchased a book that is intended for beginners to Bayesian statistics. The book, by Will Kurt, is titled Bayesian Statistics the Fun Way: Understanding Statistics and Probability with Star Wars, Legos, and Rubber Ducks. I will be switching from two classes to one next semester, so I intend to have time to read through this book over the next few months. I hope that this book leads me to a more complete understanding of conditional probability and that it allows me to begin working on projects that incorporate Bayesian techniques. On top of Bayesian statistics, other aspects of decision analysis that I wish to study further on my own are game theory and risk-preference analysis. These three were mentioned throughout the resources of this course as the main theoretical areas. When it comes to my plan for self-directed studies in the future, regardless of the specific resources that I use, I know that I will learn the most by working on projects that require using these concepts in practice.