Political Science 685: Probability and Statistics

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Overview
This course provides an introduction to the principles of probability and mathematical statistics. Here you will learn the foundational principles of statistics that will be important for any type of quantitative analysis you will do in the future. The material taught in this class will be important for understanding Poli Sci 686, the next class in the methods sequence on regression and critical to understanding the material in Poli Sci 786.

Given the foundational nature of the course there will not be much data analysis. You are learning to crawl this quarter and we won’t quite reach the stage at which analysis can be done for publication. Some students find this aspect of the class frustrating and a bit detached from the practice of political science research. While this is true, to be a competent user of statistics you need to learn the foundations. Be patient and the relevance of this class will be very obvious in future methods courses. Moreover, many of the concepts that you learn in this class spill over into formal methods.

Required Texts


Both texts are available at The Student Book Exchange store on High St. and at various places online. You will need copies of both books as you will have homework assignments from both of them.

Course Requirements
This class will have many required homework assignments. Most likely we will have homework assignments every day. While assignments everyday may seem like a lot; in many ways it is easier to have assignments everyday. The scope of the assignments is limited, giving you time to focus on smaller bits of the material. I have to grade more often, so trust me I am doing this for your sake.
There will also be a midterm and a final. Each exam will be worth 20% of your grade and the homeworks the rest. I will grade on a curve if the class mean gets too low. The grading scale will be different from that of an undergraduate class. A to A- is a good grade, B+ to B- is an acceptable grade, and C+ or below is a bad grade. We might call this high pass, pass, and fail.

**Special Accommodations**

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office for Disability Services at 614-292-3307 in room 150 Pomerene Hall to coordinate reasonable accommodations for students with documented disabilities.

**Academic Integrity**

Dishonest practices on the examinations, on essays, or in the course are unacceptable. All work is to be the students own. There will be no collaboration on exams. Any suspected cases of dishonesty will be reported to the University Committee on Academic Misconduct and handled according to university policy. The committee defines plagiarism as the representation of another's works or ideas as one's own; it includes the unacknowledged word for word use and/or paraphrasing of another persons work, and/or the inappropriate unacknowledged use of another persons ideas. Plagiarism is unacceptable in this and all classes at OSU.

**Collaboration**

In a class with many homework assignments, you might wonder if you can work together. And the answer is yes. That does not mean, however, that students are allowed to turn in identical assignments. Work out the solutions together and then write up the final answer separately. Identical assignments will result in failure of the assignment.

**Office Hours**

My office hours will be from 10 - 11 am on Tuesdays and Thursdays. Unlike the undergrads you should not be shy about using office hours. If you are confused, get help before you get behind.

**Class Schedule**

I am have purposely not included dates with the topics that we are going to cover. The reason for this is that it is hard to predict in advance which topics students will find difficult or easy. In turn, it is hard to predict exactly how long we will spend on each topic. The key goal is to cover all the topics in a quarter. We are scheduled to meet for every class period.

- Introduction to Statistics -Reading: WMS Chapter 1, Verzani Chapters 1 and 2 and Handout
- Probability -Reading: WMS Chapter 2
- Discrete Random Variables -Reading WMS Chapter 3
- Continuous Random Variables -Reading: WMS Chapter 4
- Multivariate Probability Distributions -Reading: WMS Chapter 5
• Functions of Random Variables -Reading: WMS Chapter 6
• Sampling Distributions and the Central Limit Theorem -Reading: WMS Chapter 7
• Midterm: Mon October 23
• Estimation and Confidence Intervals -Reading: WMS Chapter 8
• Properties of Estimators and Hypothesis Testing -Reading: WMS Chapters 9 and
• Hypothesis Testing Continued -Reading: WMS Chapter 10
• Regression -Reading: WMS Chapter 11
• Final Exam: Tuesday Dec 5th 7:30-9:18 AM. No Exceptions.