This course is a graduate-level introduction to data analysis for political scientists. Why not just take statistics from statisticians, you might ask? There are two main reasons. First, this course is designed for students with a broad range of prior exposures to the subject, which is typically the case for incoming political science graduate students. The course assumes no prior mathematical or statistical knowledge, except for some recollection of algebra. Nonetheless, we will cover certain topics unlikely to be stressed in a really basic introductory statistics course, and I will often “show you the math” in the lectures even if you will not be required to reproduce or extend it in problem sets or on the final. The second difference between this course and a “Statistics 100” is that this course is political science flavored. It will rely on political science examples, data sets, and preferred techniques, and is informed overall by the methodological styles and implicit philosophies typical of current practice in political science.

Prerequisites: None, as noted above, except for algebra. Some memory of basic calculus will be helpful, since I will cover some material that uses it. However this is certainly not necessary (for example, the main text uses no calculus and barely any algebra).

Requirements: Four problem sets and one take-home final. I strongly encourage the formation of 2-4 person study groups for mutual support on the problem sets, as this seems to facilitate learning.

Course website

http:\www.stanford.edu\class\polisci100a
Course materials

The books listed below are available at the Stanford Bookstore and should also be on reserve at Green. There is no reader for the course; however, there will be a few articles assigned that you will need either to download from JSTOR or make copies of at the library.


Computer-related stuff

All of the assignments will involve using Stata 7, a statistics package loaded onto the several machines in the political science computer cluster. (Stata is also available on the unix machines, although the interface is less attractive and many of nice graphics are not available unless you set up an X-Windows client, which we will tell you to do if this is your preferred means of access.) We will teach basic Stata as we go, sometimes using sections expressly for this purpose. The course website (link) will have a section for data sets to be used in the problem sets, as well as links to sites with downloadable data sets.

Topics and readings

Week 1: Sept. 26

1. Course Introduction and conceptual overview

Week 2: Oct. 1 and 3

1. Conceptual overview continued, plus examples and exemplars
   - FPP (Freedman et al.), chaps. 1 and 2.
• Fiorina, *Keystone*, chaps. 1-6, and 10.

2. cont.


**Week 3: Oct. 8 and 10**

1. Describing data: graphs and summary statistics

2. cont., plus some math review

• FPP, chaps. 3-9.
• Bulmer, chap. 4.
• KKV (King, Keohane and Verba), chaps. 1-2.

**Week 4: Oct. 15 and 17**

1st problem set due on Monday.

1. Probability: set theory, axioms, and counting

• FPP, chaps. 13-15.
• Bulmer, chap. 1-2.

2. continued: conditional probability, Bayes’ rule

**Week 5: Oct. 22 and 24**

1. More probability, random variables, utility theory as an example.
2. cont., density functions, cdfs, and some probability distributions
   - Bulmer, chaps. 3, 5, 6.
   - Handout reading on distributions

**Week 6: Oct. 29 and Oct. 31**

2nd problem set due Monday.

1. The central limit theorem
   - FPP, chaps. 16-18.
   - Bulmer, chap. 7.

2. Sampling, surveys, and case selection
   - FPP, chaps. 19-23.
   - KKV, chap. 4.

**Week 7: Nov. 5 and 7**

1. Hypothesis testing
   - FPP, chaps. 26-27.
   - Bulmer, chaps. 8-9.

2. continued
   - FPP, chaps. 28-29.

**Week 8: Nov. 12 and 14**

3rd problem set due Monday.

1. Ordinary Least Squares

2. cont.
   - FPP, chaps. 10-12.
   - Bulmer, chap. 12.
• Achen, pages 1-37.
• KKV, chap. 3.

Week 9: Nov. 19 and 21

1. Multivariate regression
2. cont.
   • Achen, pages 37-68.
   • KKV, chaps. 4 and 5.

Week 10: Nov. 26 and 28

4rth problem set due Monday.

1. cont.
2. Review