

Political Science 7012  
Introduction to Data Analysis  
Baldwin 301  
Wed 3:35-6:35  
Spring 2013

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This course builds on the material learned in POLS 7010. In 7010 you learned how to create a research design, especially with respect to deriving interesting testable hypotheses. This course is the beginning of a sequence that will teach you how to actually test those hypotheses using quantitative methods. Students will be introduced to basic statistical methods used in the study of political science, and the social sciences at large. Statistics are an efficient and accepted way of communicating ideas; they are a means of bridging the gap between implication and inference. Contemporary political science research in all subfields utilizes statistical techniques and, consequently, a basic understanding of these methods is crucial if one is to be a sophisticated consumer of political science literature and to become a producer of such research. The lectures, homework, and exams are designed to instruct you in the understanding and proper use of social science methods and promote your critical analysis of statistical findings. Students will learn to describe data, understand the impact of randomness in statistical research, conduct statistical tests, and most importantly learn to evaluate the implications of quantitative results. Students will learn to compute most of the techniques discussed in class both ‘by hand’ and ‘by computer’. We will also devote portions of the course to the use of statistical software and commonly used archival sources of political science data.

## **Grading:**

The assignment of grades will be based on homework, two exams and a research project.

Homework: 25%  
Midterm: 25%  
Final Exam: 25%  
Project: 25%

Attendance is a basic minimum for this course—points are not awarded for attending, but your grade may be lowered if absences/tardiness becomes a problem. Both the midterm and the final will be administered ‘in class’ on the dates specified in this syllabus. Since the dates of the two exams are set, there will be no make-up exams.

You are encouraged to bring to the exams a non-graphing calculator.

Homework will be assigned three times during the semester, each assignment worth 100 points and totaling 25% of the final grade. You will have one week to complete the assignments. Late assignments will receive a penalty of 10 points for each day they are late. You may work in groups when completing your assignments, but the finished assignments must reflect your own, individual interpretations of the results.

The final exam will not be cumulative; however the materials in the second half of the course (obviously) build off of the first half of the course.

The research project will require you to find a data set of interest to you and to pose an interesting, testable hypothesis. You will then analyze this hypothesis using the tools you learn in this course. The finished product should be no more than 15 pages (double-spaced). The goal of this exercise is not to solve the greatest puzzles in political science, but to familiarize you with different sources of data and to provide a basic outline for getting started with quantitative research. I will provide more details on this assignment later in the semester.

## **Text and Materials**

There is one required text for the course:

Agresti, A. & Finlay, B. (1997). **Statistical methods for the social sciences, 3rd or 4<sup>th</sup> ed.** Upper Saddle River, New Jersey: Prentice Hall.

Some weeks have additional reading assigned. These readings are articles available through JSTOR.

A calculator will also be required. Graphing calculators will NOT be allowed. The calculator can be very simple, just make sure it has a square root function (squaring and factorial function keys will also be very helpful).

## **Academic Honesty**

All academic work must meet the standards contained in “A Culture of Honesty.” Students are responsible for informing themselves about those standards before performing any academic work.

The link to the more detailed information about academic honesty can be found at:

<http://www.uga.edu/ovpi/honesty/acadhon.htm>.

## Course Schedule:

**Week 1:** Course Introduction

**Week 2:** Introduction to Statistical Methodology; Sampling and Measurement  
Agresti, Chapters 1 & 2

**Week 3:** Descriptive Statistics  
Agresti, Chapter 3  
"Verification/Replication" in PS: Political Science & Politics. Volume 28, Number 3,  
September 1995.

**Week 4:** Probability Distributions  
Agresti, Chapter 4

HOMEWORK 1—passed out in class

**Week 5:** Statistical Inference (Estimation)  
Agresti, Chapter 5

HW 1 due.

**Week 6:** Statistical Inference (Significance Tests)  
Agresti, Chapter 6

**Week 7:** Statistical Inference (Significance Tests)

HOMEWORK 2—passed out in class.

**Week 8:** Review

HW 2 due.

**Week 9: MIDTERM—March 6**

**March 11th-15th—SPRING BREAK**

Think about statistics at some point during this week. Collect data for project—if not done already.

**Week 10:** Comparison of Two Groups/Analyzing Association Between Categorical Variables  
Agresti, Chapters 7 & 8

[Gill, Jeff. 1999. "The Insignificance of Null Hypothesis Significance Testing." Political Research Quarterly 52\(3\): 647.](#)

**Week 11:** Analyzing Association Between Categorical Variables—continued.

**Week 12:** Linear Regression and Correlation  
Agresti, Chapter 9

Bartels, Larry M. “Five Approaches to Model Specification.” *The Political Methodologist*, 3:2-6.

Geddes, Barbara. 1990. “How the Cases You Choose Affect the Answers You Get: Selection Bias in Comparative Politics.” *Political Analysis*, :131-150.

HOMEWORK 3—passed out in class

### **Week13—MPSA CONFERENCE IN CHICAGO**

**Week14:** : Multivariate Regression and Correlation  
Agresti, Chapters 10 & 11

Green, Donald P. “On the Value of Not Teaching Students to Be Dangerous.” *The Political Methodologist*, 3:7-9.

[King, Gary. 1986. “How Not to Lie with Statistics: Avoiding Common Mistakes in Quantitative Political Science.” \*American Journal of Political Science\*, 30:666-687.](#)

[Luskin, Robert C. 1991. “Abusus Non Tollit Usum: Standardized Coefficients, Correlations, and R2s.” \*American Journal of Political Science\*, 35:1032-1046.](#)

[King, Gary. 1991. “Truth” Is Stranger than Prediction, More Questionable than Causal Inference.” \*American Journal of Political Science\*, 35:1047-1054.](#)

HW 3 due

**Week 15: FINAL April 24**

Project due.—**MAY 1**

Note: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. We may not cover all of these topics. Conversely, time permitting, other topics might be covered in this course.