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**PolS 401 Data Analysis I**  
**Fall 2009**  
**Room 1171 or 4133, BSB**  
**R, 03:30 - 05:59 pm**

## **COURSE OVERVIEW**

This course offers graduate students the first introduction to the study of data analysis. It will provide you with both an understanding of the main ideas of statistics and some crucial research skills for empirical analysis. The tools you will acquire in this class are the building blocks for any future interactions you will have with statistics. This course is also designed to give you an opportunity to develop, design, and write a replication paper.

## **INFOMATION ON TEACHING ASSISTANT**

Cori Smith  
Email: csmith3@uic.edu  
Office Hours: Thurs 2:00 – 3:00 pm, or by appointment  
Office Location: Room 1109, BSB  
Phone: 312-355-3261

Cori will be responsible for teaching how to use Stata, grading all the assignments (except for replication paper outlines), and answering any statistical questions you may have.

## **REQUIRED TEXTBOOKS**

- 1) Agresti, Alan and Barbara Finlay. (2008) 4<sup>th</sup> ed. *Statistical Methods for the Social Sciences*. New Jersey: Prentice Hall.
- 2) Kohler, Ulrich and Frauke Kreuter, (2008) 2<sup>nd</sup> ed. *Data Analysis Using Stata*, Stata Press.
- 3) Hamilton, Lawrence C. (2008) *Statistics with Stata* (Updated for Version 10). Brooks/Cole.

## **GRADING POLICY**

*Nine Quizzes (36 points):* A short quiz will be given at the end of each class. **NO** make-up quizzes will be given without a written medical excuse. Nor will any “dead grandmother excuses” be accepted unless the student provides positive evidence that the purported “death” really took place and the “dead person” was really a member of the student’s immediate family.

*Nine Lecture Summaries (9 points):* Each lecture summary must be one page long, typed, single-spaced, in a legible font (10 to 12 point), with 1 inch margins on standard letter-size paper.

*Three In-Class Examinations (30 points):* There will be three exams during the semester. Each exam is not cumulative. **NO** make-up exams will be given without a written medical

excuse. Nor will any “dead grandmother excuses” be accepted unless the student provides positive evidence that the purported “death” really took place and the “dead person” was really a member of the student’s immediate family.

*Three Critical Review Papers (12 points):* Each paper’s purpose is to help you begin to think about your own replication paper. Each review must one page long, typed, single-spaced, in a legible font (10 to 12 point), with 1 inch margins on standard letter-size paper. More detailed information is attached to this syllabus.

*One Replication Paper Outline (13 points):* Its purpose is to help you to choose your replication paper topic for PolS 501 Data Analysis II as early as possible. Your topic must be related to one of the following three research themes: democracy, terrorism, and globalization.

Your outline should be four to five pages long, typed, double-spaced, in a legible font (10 to 12 point), with 1 inch margins on standard letter-size paper.

The grading scale is as follows: A ( $\geq 90$  points); B (80-89); C (70-79); D (60-69); F ( $< 60$ )

**NO** incompletes will be given for the course.

## **OTHER COURSE POLICIES**

**Late work:** I am willing to help solve almost any special problem or concern you might have with this course. However, this is only possible if you talk to me about it *in advance* of assignment due dates. Extensions for assigned work will be granted only for documented medical or family emergencies. In sum, if you anticipate difficulty submitting assigned work by the specified due date because of illness or other emergency, extensions are possible only when you:

- contact me in advance **by email only**
- provide me with appropriate documentation **within one week after the due date**

**Extremely important:** For the record, you must keep our email exchanges for extensions granted *in your email account* (i.e., both your request email to me and my grant email to you). If you fail to present both emails, your claim will not be supported. This means that for your own protection, you can delete our email exchanges from your email account **45 days after you are officially able to check your final course grade online.**

**Computer-related problems:** Ultimately, you are responsible for backing up your own work and caring properly for your own computing equipment. I may grant extensions for assignments due to computer-related problems, but only in the rarest of circumstances. First, I will not entertain any requests for extensions due to computer-related problems made to me within 12 hours of the paper’s due date. If you expect computer difficulties to make it impossible for you to submit a paper by the due date (and that due date is not within 12 hours) contact me and we will discuss alternative arrangements for you.

**Accommodations for disabilities:** Students with disabilities must inform me of the need for accommodations. Those who require accommodations for access and participation in this course must be registered with the Disability Resource Center. Please contact ODS at 312-413-2183 (voice) or 312-413-0123 (TTY).

**Academic dishonesty:** The University expects students to fulfill their academic obligations through honest and independent effort. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. Academic dishonesty is considered a serious offense subject to strong disciplinary actions, including being dropped from the course with a grade of “F.”

**Classroom etiquette:** You are expected to observe all rules of proper classroom conduct. In order to insure an appropriate environment conducive to learning by all: (1) please refrain from talking, eating or other disruptive activity during class; even one or two conversations quickly create distractions for other students; (2) no cell phone calls, incoming or outgoing, are allowed in this class; please turn off your cell phone or set to vibrate; and (3) please do not come to class late. Also, please do not leave class early; if you must do so, tell me beforehand and arrange to sit near the door so your exit will be less disruptive.

## **COURSE SCHEDULE**

### **August 27:**

Agresti and Finlay, Chapter 1 Introduction  
Chapter 2 Sampling and Measurement  
Kohler and Kreuter, Chapter 1 “The first time”  
Hamilton, Chapter 1 Stata and Stata Resources

### **September 3: No Class. American Political Science Association Conference Day**

### **September 10:**

Agresti and Finlay, Chapter 3 Descriptive Statistics  
Kohler and Kreuter, Chapter 2 Working with do-files  
Hamilton, Chapter 2 Data Management

First Quiz

First Lecture Summary Due

### **September 17:**

Agresti and Finlay, Chapter 4 Probability Distributions  
Kohler and Kreuter, Chapter 3 The grammar of Stata  
Chapter 4 General comments on the statistical commands  
Hamilton, Chapter 2 Data Management

Second Quiz

Second Lecture Summary Due

**September 24:**

Agresti and Finlay, Chapter 5 Statistical Inference: Estimation  
Kohler and Kreuter, Chapter 5 Creating and changing variables  
Hamilton, Chapter 2 Data Management

Third Quiz

Third Lecture Summary Due

**October 1:**

First In-Class Examination

Research Theme: Democracy  
Oneal, John R. and Bruce Russett. (2005) "Rule of Three, Let It Be?" *Conflict Management and Peace Science* 22 (4): 293-310.

First Critical Review Due

**October 8:**

Agresti and Finlay, Chapter 6 Statistical Inference: Significance Tests  
Kohler and Kreuter, Chapter 7 Describing and comparing distributions  
Hamilton, Chapter 4 Summary Statistics and Tables

Fourth Quiz

Fourth Lecture Summary Due

**October 15:**

Agresti and Finlay, Chapter 9 Linear Regression and Correlation  
Kohler and Kreuter, Chapter 7 Describing and comparing distributions  
Hamilton, Chapter 4 Summary Statistics and Tables

Fifth Quiz

Fifth Lecture Summary Due

## **October 22:**

Agresti and Finlay, Chapter 10 Introduction to Multivariate Relationships

Kohler and Kreuter, Chapter 8 Introduction to linear regression

Hamilton, Chapter 6 Linear Regression Analysis

Sixth Quiz

Sixth Lecture Summary Due

## **October 29:**

Second In-Class Examination

Research Theme: Democracy and Terrorism

Wade, Sara Jackson and Dan Reiter. (2007) "Does Democracy Matter? Regime Type and Suicide Terrorism." *Journal of Conflict Resolution* 51(2): 329-348.

Second Critical Review Due

## **November 5:**

Agresti and Finlay, Chapter 11 Multiple Regress and Correlation

Kohler and Kreuter, Chapter 8 Introduction to linear regression

Hamilton, Chapter 6 Linear Regression Analysis

Seventh Quiz

Seventh Lecture Summary Due

## **November 12:**

Agresti and Finlay, Chapter 14 Model Building with Multiple Regression

Kohler and Kreuter, Chapter 8 Introduction to linear regression

Hamilton, Chapter 7 Regression Diagnostics

Eighth Quiz

Eighth Lecture Summary Due

## **November 19:**

Agresti and Finlay, Chapter 15 Logistic Regression: Modeling Categorical Responses

Kohler and Kreuter, Chapter 9 Regression models for categorical dependent variables

Hamilton, Chapter 10 Logistic Regression

Ninth Quiz

Ninth Lecture Summary Due

**November 26: Thanksgiving Day. University Closed**

**December 3:**

Third In-Class Examination

Research Theme: Democracy and Globalization

Rudra , Nita. (2005) "Globalization and the Strengthening of Democracy in the Developing World." *American Journal of Political Science* 49 (4): 704–730.

Third Critical Review Due

**December 7: Replication Paper Outline Due**

**\*\*\*\*\* Instructions for Critical Reviews \*\*\*\*\***

prepared by Matthew Powers

**1.) Proofread!**

- a. Be sure there are no grammatical or spelling mistakes in your paper; this reflects on your professionalization and overall readability of your work.

**2.) Follow the directions!**

- a. 1 inch margins
- b. 10 to 12 point font
- c. 1 complete page single spaced
  - i. This does not necessarily mean that each paper has to be on the final line of the page, but if it is obvious that it is significantly shorter than one page points will be deducted.
  - ii. Also, while I do not want the papers to go much over a complete page, works that are slightly over the one page limit will be fine.

**3.) Do not summarize!**

- a. The critical reviews are not meant to gauge how well you can summarize an argument. Papers which merely regurgitate what the author's/authors' do and/or find will not receive a passing grade.
- b. I realize that it may be necessary to dedicate a section of your paper to recap what the work is about, but this should not be more than one (maybe two) relatively short paragraph(s).

**4.) Be critical!:** The point of the critical reviews is to be, well, critical.

- a. As a graduate student, you should be able to pick up an article/book and rip it apart. Find the flaws and exploit them (particularly those dealing with quantitative aspects of the paper). The following is a list of the possible ways by which this can be achieved:
  - i. Is the way the author(s) coded a particular variable valid? For instance, by dichotomizing a variable did the author(s) lose valuable information that could have been retained by a continuous variable?
  - ii. Is the data measuring what the author(s) claim it is measuring? Could a different variable perhaps measure a particular concept more accurately? For instance, if the authors use the number of McDonalds to measure the development level of a country, there may be something wrong with this.
  - iii. Even if a variable seems appropriate, is there another way it could be coded which would be more accurate? For instance, say a researcher is studying what causes a war to be destructive/not destructive and he/she uses the amount of monetary damage done during the war for his/her dependent variable. While this seems valid, would it be better to use a variable which measures the total number of people wounded and/or killed?
  - iv. What statistical method is the author(s) using? What are the pros/cons of using this particular method?
  - v. What control variables did they use? Did they leave something important out which could conceivably provide an alternative argument as to what

caused the dependent variable? Did they provide an overwhelming number of control variables?

- vi.** Look at the empirical results that they report. Did they suddenly leave out a control variable in one of their models and fail to explain why?
- vii.** Is the argument better suited to a dyadic analysis than a monadic analysis (or vice versa)? In order to answer this question you will first have to learn the difference between these two terms.
- viii.** Is the author(s) controlling for reverse causality?
- ix.** How big is their sample of cases? If it numbers in the hundreds and they include a whole host of control variables, how reliable are their results? If in one model the number of cases numbers in the tens of thousands, and in another model it number in the thousands, ask yourself why the analysis suddenly lost so many observations.
- x.** If the author(s) is using time series data, are they correcting for serial correlation? If using cross-sectional data, are they correcting for heteroscedasticity? If using pooled data, are they correcting for both?
- xi.** Is the sample of cases appropriate? Should they be more inclusive? More exclusive?
- xii.** Is the time period of the analysis appropriate? Is it too short?
- xiii.** Do some of the variables have time-varying effects? If so, does the author(s) correct for this?
- xiv.** Your papers do not have to be completely negative. You can also indicate whether the author(s) did a good job at controlling for these potential problems.

\*\*\* Note: This is merely a small sample of questions that you could be asking yourself while reading an article. There are many, many more which you could possibly pick up on but hopefully this provides you with a sense of what we will be looking for in reading your critical reviews.