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Political Science 170a
Introductory Statistics for Political Science and Public Policy

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Winter Quarter 2015
WLH 2112, Tu/Th 11-12:20 PM

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Prerequisites

This course does not have any formal prerequisites. We will start from the beginning of data analysis. However, since this course is meant for upper-level undergraduates, the pace of this course will be much faster than PS 30. Therefore it would be helpful if you have either already taken PS 30 or have taken a basic statistics class at some point in your studies.

Overview

This course will introduce you to methods and tools for empirical data analysis in political and social science research. In particular, you will learn basic statistical techniques that are useful for the description of, and inference from, observed data for the purpose of testing theories and discovering empirical regularities. The course will also familiarize you with R, a statistical package for analyzing data.

Assessment

There are no written exams in the class, and your grade will be based on a combination of:

- **Homeworks (40%):** Problem sets will be given throughout the quarter, skewed heavily toward the beginning of the quarter. Problem sets will contain analytical, computational, and data analysis questions. Each problem set will be counted equally toward the calculation of the final grade. The following instructions will apply to all problem sets unless otherwise noted.

- Late submission will not be accepted unless you receive special permission from the instructor in advance.
- One hard-copy of the homework write-up should be turned in in class, and a copy of the homework write-up and accompanying code should be turned in electronically.
- Working in groups is encouraged for conceptual and sometimes technical discussion, but each student must submit their own writeup of the solutions that shows their independent work on the assignment. In particular, you should not copy someone elses answers or computer code. We also ask you to write down the names of the other students with whom you solved the problems together on the first sheet of your solutions.
- For analytical questions, you should include your intermediate steps, as well as comments on those steps when appropriate. For data analysis questions, include annotated code as part of your answers. All results should be presented so that they can be easily understood.

- **Final project (50%)**: The final project will be a short research paper that applies a method learned in this course in an original way to an empirical problem of your substantive interest.
  - Though not required, I encourage you to work with another student on your final project.
  - The most time-consuming part of the research project will likely be locating and collecting the data. Please begin thinking about what data you might like to use as soon as possible. Once you have decided on the data and research question, send an e-mail to me describing the question you are planning on answering at the data you will be using. The deadline for this assignment is January 27, but the sooner you can begin, the better.

- Students are expected to adhere to the following deadlines:
  - January 27: E-mail me with a one paragraph description of the question you are planning to answer and the data you will be using for the project.
  - February 12: Turn in a two page prospectus outlining your proposed project and proposed dataset. This prospectus should:
    * introduce the topic or topics you are going to study
    * explain why these topics matter - why are they worthy of study?
    * explain your theory. That is, how do you expect the dependent variable (the thing you are trying to explain) to be related to the independent variable (the thing that does the explaining)?
    * precisely state your hypothesis. That is, how will you test your theory? What evidence will you need to see to believe your theory is the correct one? What evidence would suggest your theory was wrong?
    * explain your research strategy: what data will you use, and where will you get it? What methods will you use to test the theory - linear regressions, logistic regression, what?
    * explain what you expect to find. By this date you need to have acquired the data you plan to use, and have a sense of the question you want to answer.

- March 18: Final project due. Please turn in one printed copy by the end of the day, and email electronic copies to the instructor. The research paper should have the following sections:
  * Introduction: what is the topic of interest and why is it of interest? Broadly, what is the paper about, and what will it suggest?
  * Literature: what do we know about this topic so far? Who has worked on this, and how does their work relate to yours?
  * Theory and Hypotheses: how do you think the dependent and independent variables relate? What precisely will you be testing?
  * Data and Methods: describe your data and what methods/techniques/approaches you are using to test your theory
  * Results: what did you find? Use some of the techniques we learned in the course to show your results with tables and graphs.
  * Discussion: summarize the findings and explain why they matter. What further work needs to be done? how have you contributed to the debate or literature in this part of political science?
  * The paper should be double-spaced, 12pt font, 1-inch (or so) all round margins, no more than 3000 words (or about 12 pages).

- **Participation (10%):** Students are strongly encouraged to ask questions and actively participate in discussions during lectures.

Academic Honesty and Plagiarism

All of your graded work must be done by you. If you are unfamiliar with the University's policy on academic integrity, please see http://students.ucsd.edu/academics/academic-integrity/policy.html.

Syllabus and Plan

The syllabus will be updated periodically throughout the course, so that we can keep with the cadence of the class. I will post to Piazza when such updates are made.

Reading and Textbooks

We will read chapters from these books throughout the course. I recommend that you purchase both of the following books:

- Pollock, Philip. *The Essentials of Political Analysis.*
- Pollock, Philip. *An R Companion to Political Analysis.*

Piazza

We will be using Piazza for general discussion and questions and answers throughout the class. Piazza allows students to see other students' questions and learn from them as well as answer them. After the first day of class, I will add you to the Piazza list. Your respectful and thoughtful participation in the discussion forum will count toward your participation grade. Please do not e-mail the instructor with questions (post them on Piazza!) unless they are personal in nature. I will check the Piazza forum daily to provide my own answers and contributions.

Software

We will be using `R` an open-source statistical package. You can download it from the web here:

`http://cran.r-project.org/`

COURSE SCHEDULE

1 Jan 6: Course Introduction

2 Jan 8: Measurement and Concepts

Reading

Pollock Essentials, Ch 1 and 2

Pollock R Companion, Ch 1

3 Jan 13-20: Proposing Explanations and Hypotheses

Reading

Pollock Essentials, Ch 3

Pollock R Companion, Ch 2

4 Jan 25-27: Causality and Experiments

Reading

Pollock Essentials, Chapters 4 and 5

Pollock R Companion, Ch 3

5 Jan 29: Sampling and Surveys

Reading

Pollock Essentials, Ch 6, pg 122-128

6 Feb 3-10: Assessing Hypotheses

Reading

Pollock Essentials, Ch 3

Pollock R Companion Ch 6

7 Feb 12: T-tests

Reading

Pollock Essentials, Ch 6

Pollock R Companion Ch 6

8 Feb 17-19: Linear Regression

Reading

Pollock Essentials, Ch 8

Pollock R Companion Ch 8

9 Feb 24: Multiple Regression

Reading

Pollock Essentials, Ch 8

Pollock R Companion Ch 8

10 Feb 26: Panel Data

Reading

Does the death penalty save lives? New evidence from state panel data, 1977 to 2006. Tomislav V. Kovandzic, Lynne M. Vieraitis and Denise Paquette Boots. Criminology & Public Policy Volume 8, Issue 4, pages 803843, (2009)

Pollock R Companion Ch 9

11 Mar 3-5: Logistic Regression

Reading

Pollock Essentials, Ch 9

Pollock R Companion, Ch 10

Jackson, Robert. A Reassessment of Voter Mobilization Political Research Quarterly June 1996 vol. 49 no. 2 331-349.

12 Mar 10: Ordered Dependent Variables

Reading

TBD

13 Mar 12: Count Models

Reading

TBD