POL 410: Quantitative Analysis of Public Policy

Michael Hankinson
mhankins@fas.harvard.edu

Lecture: Tuesdays and Thursdays, 1:30 pm - 2:45 pm, King 227
Lab Section: Friday, TBA, Rice 117
Office Hours: Tuesday, 3:15 pm - 5:15 pm, Rice 112

Spring 2018

Purpose

This course will teach the skills necessary for measuring political and policy phenomenon with quantitative data. Specifically, this course builds on a framework of causal inference. How can we separate separate causation from correlation in understanding the political world around us? You will learn to read, evaluate, and conduct your own analyses of politics and public policy. You will work with real datasets and learn the statistical techniques used by quantitative social scientists. For software, we will be using R, an open source, free, and awesome (in the original sense of the word) resource.

This course will likely be very challenging and require more outside work than other classes. Overall, the goal is to not only empower you to conduct your own evaluations in class, but to bring a skeptical eye to the empirical evidence you encounter in the wild, post-Oberlin.

Learning Goals

By the end of this course, you will be able to:

1. Understand the need for rigorous quantitative evaluation of policy and political phenomena,

2. Conduct statistical analyses of quantitative data using the core methodology of the field,

3. Interpret results from the perspective of efficiency and equity, and

4. Apply methods to new datasets within your own areas of substantive interest.

In alignment with Oberlin's larger learning goals, these achievements should enhance your capacity to:

1. Create new knowledge,

2. Analyze arguments on the basis of evidence, and

3. Collaborate to solve problems within your own community.

Prerequisites

To receive instructor consent, you need to have taken POLT 205: 'Political Research and Analysis' or a similar course covering statistics including linear regression. Please include your experience in statistics when emailing to request instructor consent.

Course Requirements

Grades will be composed of the following:
- 10% attendance and participation
- 25% problem sets
- 20% midterm exam
- 25% final exam
- 20% final paper

Attendance and Participation Policy

Participation requires reading the materials in preparation for class. You are expected to actively contribute to the discussion. Laptops, tablets, and phones are not permitted in class. All slides will be posted online. Checking email, text messages, or social media in class or lab is unprofessional and will count against your participation grade.

Problem Sets

The courses consists of six problem sets meant to apply the lessons to real data. The first five are mandatory. The sixth problem set is optional. If you complete it, the sixth problem set will replace your lowest grade on the mandatory five (assuming it is higher). To receive credit, the problem set must be submitted before the start of class on the day it is due. Late problem sets are penalized by one letter grade (10 points) per day, starting at the beginning of class. Answers to problem sets requiring `R` must include a script which will run free of errors.

Exams

There will be a midterm and a final exam. The midterm will be held on April 10th and the final will be held on May 10th. Exams are closed book and closed notes.

Final Project

The final project allows you to conduct a research analysis of your choosing with an original dataset. You will work in groups of no less than two and no more than three. The project will be due on May 19th, the Oberlin College-scheduled exam time. I will provide more information about the project at the midpoint of the semester.

Lab Sessions

Lab sessions will be held on Fridays at a to-be-determined time depending on availability. The sessions will focus on implementing class materials in `R`. Attendance is *very strongly* encouraged, but not mandatory.

Readings

The textbook for this class is available for purchase or rental at the Oberlin campus story, or online at Amazon or Oxford University Press. Additionally, an e-book of the text is available for a 6-month rental on `redshelf.com`.

- Bailey, Michael. 2016. *Real Stats: Using Econometrics for Political Science and Public Policy.* Oxford University Press.

Disabilities Accommodation

In compliance with the Oberlin College policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Resources at the Center for Student Success (`drcss@oberlin.edu`) to verify their eligibility for appropriate accommodations.

Academic Integrity

Students are encouraged to work together to understand and synthesize the readings and materials. However, your problem sets and `R` script must be your own.

Course Calendar

The following course schedule is subject to change.

- Week 1 - 2/6 & 2/8

    - Tuesday: Introduction
    - Midweek: Read Chapter 1 and Krugman, 'The Excel Depression'
    - Thursday: Causality, Endogeneity, and Correlation
    - Weekend: Read Chapter 2

- Week 2 - 2/13 & 2/15

    - Tuesday: Good Data Practices and `R`
    - Midweek:
    - Thursday: **Problem Set 1 Due** and Review
    - Weekend: Read Chapter 3.1-3.3

- Week 3 - 2/20 & 2/22

    - Tuesday: Bivariate Regression
    - Midweek:
    - Thursday: Exogeneity and Unbiasedness
    - Weekend: Read Chapter 3.4 - 3.7

- Week 4 - 2/27 & 3/1

    - Tuesday: Precision of Estimates
    - Midweek:
    - Thursday: **Problem Set 2 due** and Probability Limits
    - Weekend: Listen to Radiolab "Stereothreat" and read "Why Replications Do Not Fix the File Drawer Problem: A Model and Evidence from a Large-Scale Vignette Experiment" by Berinksy, Druckman, and Yamamoto.

- Week 5 - 3/6 & 3/8

    - Tuesday: Guest Speaker: Jamie Druckman (Northwestern University), Hypothesis Testing
    - Midweek: Read Chapter 4.2 - 4.3, 4.5
    - Thursday: t-Tests and p-Values

- – Weekend: Read Chapter 5

- Week 6 - 3/13 & 3/15

  - – Tuesday: Multivariate Analysis
  - – Midweek: Read Chapter 5.1 - 5.2
  - – Thursday: **Problem Set 3 due** and Multivariate Regression
  - – Weekend: Read Chapter 5.3 - 5.5

- Week 7 - 3/20 & 3/22 - *Spring Break*

- Week 8 - 3/27 & 3/29

  - – Tuesday: Multicollinearity and R-Squared
  - – Midweek: Read Chapter 6.1 - 6.3
  - – Thursday: Dummy Variables
  - – Weekend: Read Chapter 6.4

- Week 9 - 4/3 & 4/5

  - – Tuesday: Interactions
  - – Midweek:
  - – Thursday: **Problem Set 4 due**; *No class due to MPSA*
  - – Weekend:

- Week 10 - 4/10 & 4/12

  - – Tuesday: **Midterm**
  - – Midweek: Read Chapter 7.1
  - – Thursday: Quadratics and Polynomials
  - – Weekend: Read Chapter 7.2

- Week 11 - 4/17 & 4/19

  - – Tuesday: Logged Variables
  - – Midweek: Read Chapter 7.3 - 7.4
  - – Thursday: Standardized Coefficients, and F-Tests
  - – Weekend: Read Chapter 8.1

- Week 12 - 4/24 & 4/26

  - – Tuesday: Probability Modeling
  - – Midweek: Read Chapter 8.2 - 8.5
  - – Thursday: **Problem Set 5 due**, Fixed Effects, and Difference-in-Differences
  - – Weekend: Read Chapter 9.1 - 9.2

- Week 13 - 5/1 & 5/3

  - – Tuesday: Instrumental Variables
  - – Midweek: Read Chapter 11.1 - 11.2 (up to bottom of pg. 373)
  - – Thursday: Regression Discontinuity Designs
  - – Weekend:

- Week 14 - 5/8 & 5/10

  - Tuesday: **Problem Set 6 due** and Review
  - Midweek:
  - Thursday: **Final Exam**

- Week 15

  - **Final Project due 5/19**

Acknowledgements