PS6403: Advanced Techniques in Policy Research
Fall 2013
Tuesday & Thursday 5:30-6:45pm ESH 104

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ERC
Office hours: Tuesdays and Thursdays 10-12pm and 2-4pm

OBJECTIVES

This is the last of a three-course sequence for graduate students in the methodological techniques used in political science, social science, and public policy analysis. You should have taken the previous two courses – 6401 & 6402 – or commensurate courses. I assume that students have a strong grasp of linear regression as well as basic familiarity with elementary statistics.

The primary aim of this course is to provide students with the theoretical and applied skills to produce sound quantitative research in political science and other social sciences. We will begin with a short mathematics refresher, specifically working with calculus. Understanding basic calculus will help you to understand the foundations of maximum likelihood estimation. Understanding maximum likelihood estimation will provide students with the theoretical and analytical background to apply advanced statistical modeling techniques. However, much of the course will be focused toward the application of methodological tools for estimating, interpreting, and diagnosing various types of statistical choice models. We will consider and practice a variety of estimation techniques used in political analysis including models with event counts and survival data. A familiarity with Stata and R will be useful, though most of the models we will look at will be taught using Stata.

GATEWAY IS YOUR ASSISTANT

I will regularly update class information and material on the website for the class on MyGateway.

READING MATERIAL

Class readings will be drawn from one main source:

General recommended supplemental sources include:


For mathematics background:


**Requirements**

It is important to keep up with class readings and you should generally aim to complete the weekly readings before we start a new topic. In addition to the readings, you will also be responsible for the following:

1. **Data Analysis Assignments**: (*combine for 60% of your final grade*)
2. **Final Paper**: (*worth 40% of your final grade*)

The data analysis assignments will be given out after we cover a topic and will be due the following week. Most assignments involve using Stata to analyze data using the techniques we learn during the week. Students can work in groups, but should not turn in identical assignments. The final paper will be due on **Tuesday, December 10, 2013**.

**Class Schedule**

Topic 1: Math pre/re-fresher

Topic 2: Review of Linear Models
          Review notes from 6402 & linear regression texts
Topic 3: Introduction to Maximum Likelihood Estimation
Long & Freese: Chapter 3

Topic 4: Binary Choice Models
Long & Freese: Chapter 4

Topic 5: Ordered Choice Models
Long & Freese: Chapter 5

Topic 6: Nominal Outcome Models
Long & Freese: Chapters 6-7

Topic 7: Truncation, Censoring and Selection
Reading material provided

Topic 8: Count Models
Long & Freese: Chapter 8

Topic 9: Duration Models
Reading material provided

Topic 10: Other Statistical Techniques
Reading material provided