
Introduction to Quantitative Political Methodology

PS 572-001

Fall 2012

Course Time: MW 9-10:20am

Location: Oliver H Raymond Bldg, Rm. C053-OHR

Instructor: Dr. Clayton Thyne

Office Hours: MWF 10:30am-noon; 1625 POT

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Learning Objectives

The purpose of this course is to introduce students to basic quantitative concepts and techniques as commonly applied in political science research. Although it is primarily oriented toward preparing graduate students in Political Science for methodological training within the discipline – and therefore reflects the needs of academic professionals – it also is a useful way for the most advanced undergraduate concentrators in Political Science to learn hands-on research skills. We will begin with some basic techniques such as cross-tabulation, difference of means, analysis of variance, and others, and conclude with an introduction to correlation and regression analysis. Although you will be expected to demonstrate your understanding of the concepts introduced in this course through the completion of computational exercises, this course will place a heavy emphasis on applying these techniques using statistical software.

Learning Outcomes

At the end of this course, students will have learned:

- a) Basic mathematical & statistical skills needed to study Political Methodology at the graduate level.
- b) Theories behind the analytical approaches used in Political Science disciplinary research.
- c) How to perform quantitative analysis using the software and statistical methods published in Political Science journals.

Required Texts (Available at UK Bookstore)

- (1) *Introductory Statistics*. Wonnacott & Wonnacott, Wiley and Sons, 5th Edition. ISBN-10: 0471615188 | ISBN-13: 978-0471615187
- (2) *Statistics with Stata*. Lawrence Hamilton, Duxbury Press. 2005. ISBN-10: 049510972X | ISBN-13: 978-0495109723
- (3) *A Stata Companion to Political Analysis*, 2nd edition. Philip Pollock III, CQ Press. 2010. ISBN-10: 1608716716 | ISBN-13: 978-1608716715

Recommended/Optional Texts

- (1) *Applied Regression*. Michael Lewis-Beck, Sage Publications.
- (2) *Stata Reference Manual Extract*. Stata Press (Available from Stata website)

Statistical/Computer Skills Needed For This Course

This course assumes no prior training in statistics or advanced mathematics, but does require that you have taken college algebra. It also assumes that students have, or will get, access to a computer that connects to the Internet and that they have basic computer skills such as familiarity with Windows and a word processor. Finally, you must have or get an active email account that you check on a regular basis.

The statistical software used in this course is STATA 10.0 (or later) for Windows. This software is available in our departmental computer lab, which is accessible 24 hours a day, 7 days a week (although you can't get into the building after 11pm or before 6am).

Class Format

The class sessions for this seminar will involve a few different types of formats. Most of the time this will be the traditional lecture format in which I will present material to the class. On some days, I will demonstrate how to implement the techniques you have learned using STATA. On several occasions, we will also examine how these techniques have been applied in published examples from leading social science journals. You will also be required to watch lectures that will be available on Blackboard. See "Technology" at the end of the syllabus for minimum technology requirements that you'll need for Blackboard.

Disabilities/ Medical Conditions

If you have a documented disability that requires academic accommodations, please see me as soon as possible. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Missed exams and assignments

Make-up exams (for missed examinations) will only be given for documented excused absences as defined by the University (Senate Rule V.2.4.2) and are scheduled as needed. All missed work will result in a score of zero unless an acceptable written excuse is presented within 48 hours of the due date.

Plagiarism and Cheating

Students are advised to retain all notes and drafts for all work until after they receive their final grade. Students should also be aware that the instructor takes matters of plagiarism and cheating very seriously and is prone to imposing the most severe penalty allowed by university rules, which includes, but is not limited to, issuing an automatic grade of 0.0 for the entire course. All assignments, projects, and exercises completed by students for this class should be the product of the personal efforts of the individual(s) whose name(s) appear on the corresponding assignment. Misrepresenting others' work as one's own in the form of cheating or plagiarism is unethical and will lead to those penalties outlined in the [University Senate Rules](#) (6.3.1 & 6.3.2). The [Ombud](#) site also has information on plagiarism.

Course Requirements

Reading: For most weeks, the amount of reading is rather light by graduate school standards (in terms of the number of pages). This is deceiving. I expect that it will often take two or three readings to thoroughly comprehend the material (especially from the main text), especially as the semester progresses. Even after reading the material, you still may have questions. It is therefore important that you get started early in the week so that any questions you have can be resolved before class.

Homework Assignments:

Throughout the semester, you will be required to complete three types of assignments. First, you will be asked to complete computational exercises based on the reading for the week. Second, you will be required to complete computer-based exercises using STATA (usually applying the techniques covered in the text). Third, you will be required to turn in exercises from Pollack (just tear them out of the workbook). Computational assignments (usually exercises in the textbook) may be NEATLY hand written or done in a spreadsheet (or you may type them). No hand-written work will be accepted for other types of assignments. Late assignments will not be accepted. Be sure to follow the instructions for each assignment on the assignment page. All assignments will be handed out via Blackboard.

Participation:

We regularly review the homework assignments in class and occasionally will work through problems together. You are expected to contribute to these exercises regularly.

Exams:

There will be three exams at the dates listed below in the Course Schedule.

Grading

Exam #1: 20%

Exam #2: 20%

Exam #3: 20%

Homework Assignments: 30%

Attendance/participation: 10%

Students will be graded on a 10-point scale, with 90-100 an A, 80-89 a B, 70-79 a C.

Undergraduates receiving a course grade from 60-69 will receive a D. All others receive an E, failing the course.

Course Schedule

08/22 (W): Syllabus review, course expectations

08/27 (M): The Nature of Statistics

- Be prepared for WW Chp. 1
- Be familiar with the Stata commands in Hamilton Chp. 1-2.
- Watch “Stata Basics, Part 1” tutorial on Blackboard
- Turn in “Student survey” at the beginning of class (look on Blackboard under “Assignments”)
- Play around with these using a dataset of your choice, or just download the datasets I’ve made available at:
 - http://www.uky.edu/~clthyn2/data_set_1.dta (an IR example dataset)
 - http://www.uky.edu/~clthyn2/data_set_2.dta (an American example)

08/29 (W): The Nature of Statistics (continued)

- Watch “Types of Data” at:
<http://www.youtube.com/watch?v=hZxnfnt5v8&feature=related>
- Watch “Introduction to Statistics” at:
http://www.youtube.com/watch?v=YHXadaW_Iso&feature=BFa&list=PLA58DD58DF39B727A

09/03 (M): Labor Day – No class

09/05 (W): Descriptive Statistics

- Be prepared for WW Chp. 2
- Be familiar with the Stata commands in Hamilton Chp. 3-4
- Watch “Stata Basics, Part 2” tutorial on Blackboard
- Turn in Exercises from Pollock chp. 1 at the beginning of class

09/10 (M): Descriptive Statistics (continued)

- Watch “WW, Chapter 2 topics in Stata” tutorial on Blackboard
- Watch “Descriptive Statistics Part 1” at:
http://www.youtube.com/watch?v=8P5WZ6TfuZg&feature=results_video&playnext=1&list=PLAB61A8CC9BBCB9A5
- Watch “Descriptive Statistics Part 2” at:
<http://www.youtube.com/watch?v=DF1bFv1VN0U&feature=BFa&list=PLAB61A8CC9BBCB9A5>

09/12 (W): Probability

- Be prepared for WW Chp. 3
- Watch “Stata Basics, Part 3” tutorial on Blackboard
- Turn in Exercises from Pollock chp. 2 at the beginning of class
- Turn in Chp. 1-2 assignment at the beginning of class

09/17 (M): Probability (continued)

- Watch “WW, Chapter 3 topics in Stata” tutorial on Blackboard
- Watch “Chapter 4: Probability” at:
<http://www.youtube.com/watch?v=rhOTjLOPWbU&feature=BFa&list=PLA58DD58DF39B727A>
- Watch “Bayes’ Theorem – Explained Like You’re Five” at:
<http://www.youtube.com/watch?v=2Df1sDAyRvQ&feature=related>

09/19 (W): Probability Distributions

- Be prepared for WW Chp. 4
- Turn in Chp. 3 assignment at the beginning of class

09/24 (M): Probability Distributions (continued)

- Watch “WW, Chapter 4 topics in Stata” tutorial on Blackboard
- Turn in Exercises from Pollock chp. 3 at the beginning of class
- Watch “Chapter 5: Probability Distributions” at:
<http://www.youtube.com/watch?v=yng9pQQmJUE&feature=BFa&list=PLA58DD58DF39B727A>

09/26 (W): Two Random Variables

- Be prepared for WW Chp. 5
- Turn in Chp. 4 assignment at the beginning of class

10/01 (M): Two Random Variables (continued)

- Watch “WW, Chapter 5 topics in Stata & Excel” tutorial on Blackboard
- No assignment (study for your exam)
- Watch “BFIP13 Joint Prob, Cov, and Correlation” at:
http://www.youtube.com/watch?v=B_fxitnTIjo&feature=topics

10/03 (W): Exam #1 over WW Chp. 1-5**10/08 (M): Sampling**

- Be prepared for WW Chp. 6

10/10 (W): Sampling (continued)

- Watch “WW, Chapter 6 topics in Stata & Excel” tutorial on Blackboard
- Watch “Chapter 6: Sampling Distributions” at:
<http://www.youtube.com/watch?v=LfgPmKTdUsE&feature=BFa&list=PLA58DD58DF39B727A>

10/15 (M): Point Estimation

- Be prepared for WW Chp. 7
- Turn in Chp. 6 assignment at the beginning of class

10/17 (W): Point Estimation (continued)

- Watch “Chapter 7: Estimation” at: <http://www.youtube.com/watch?v=mD56-raCdGg&feature=BFa&list=PLA58DD58DF39B727A>

10/22 (M): Confidence Intervals

- Be prepared for WW Chp. 8
- Turn in Chp. 7 assignment at the beginning of class

10/24 (W): Confidence Intervals (continued)

- Watch “WW, Chapter 8 topics in Stata” tutorial on Blackboard
- Watch “95% CI for one mean: Worked example” at:
http://www.youtube.com/watch?v=6YUnxK_FuXo
- Watch “Hypothesis test for difference of means” at:
<http://www.youtube.com/watch?v=N984XGLjQfs>
- Watch “Z-statistics vs. T-statistics” at:
<http://www.youtube.com/watch?v=5ABpqVSx33I&feature=relmfu>

10/29 (M): Hypothesis Testing

- Be prepared for WW Chp. 9
- Turn in Chp. 8 assignment
- Turn in Exercises from Pollock chp. 6 at the beginning of class

10/31 (W): Hypothesis Testing (continued)

- Watch “Chapter 8: Hypothesis testing” at:
<http://www.youtube.com/watch?v=HmMjS88eSVE&feature=BFa&list=PLA58DD58DF39B727A>
- Watch “How to...for Hypothesis testing” at:
http://www.youtube.com/watch?v=B9u_grPccUs&feature=results_video&playnext=1&list=PLC61D70C8D11CA968
- Watch “Learn to understand...Errors” at:
<http://www.youtube.com/watch?v=iz1sfne1cNA&feature=plcp>

11/05 (M): Analysis of Variance (ANOVA)

- Be prepared for Chp. 10
- Turn in Chp. 9 assignment

11/07 (W): Analysis of Variance (ANOVA) (continued)

- Watch “WW, Chapter 10 topics in Stata” on Blackboard
- Watch “How to calculate Anova” at: <http://www.youtube.com/watch?v=pMmJcHvWOn8>

11/12 (M): Exam #2 over WW Chp. 6-10

11/14 (W): Summary and Extension of WW (Chapter 10.5)

- We’ll be covering info that WW missed; notes to be taken from me

11/19 (M): Summary and Extension of WW (continued)

- Watch “WW, Chapter 10.5 topics in Stata” on Blackboard
- Turn in Exercises from Pollock chp. 4 at the beginning of class

11/21 (W): Thanksgiving Break – No class

11/26 (M): Summary and Extension of WW (continued)

- Turn in Exercises from Pollock chp. 7 at the beginning of class

11/28 (W): Fitting a Line

- Be prepared for WW Chp. 11
- Watch “Chapter 10: Regression” at:
<http://www.youtube.com/watch?v=MIqyiGvrUXE&feature=related>

12/03 (M): Fitting a Line (continued)

- Be prepared for WW Chp. 11

12/05 (W): Fitting a Line (continued)

- Be prepared for WW Chp. 11

12/10 (M) at 10:30am: Final Exam covering all course content (it is cumulative)