Introduction to Quantitative Political Methodology
PS 572
Fall 2018

Course Time: TR 11:00am-12:15pm
Location: JSB 139

Instructor: Dr. Clayton Thyne
Office Hours: TR 3:30-4:30pm; 1621 POT (or maybe 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 and Sociology 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 social sciences to learn hands-on research skills. We will begin with some basic techniques like 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

Required Materials

Flashdrive. You will turn in all Stata assignments on a flashdrive. Thus, you need to purchase a flashdrive that will be used solely for this course. Please label the flashdrive with your name. The size does not need to be large (1 gig will be plenty).

Recommended/Optional Texts

(1) *Applied Regression*. Michael Lewis-Beck, Sage Publications.
(2) *Stata Reference Manual Extract*. Stata Press (Available from Stata website)
(3) *Statistics with Stata*. Lawrence Hamilton, Duxbury Press. 2005. ISBN-10: 049510972X | ISBN-13: 978-0495109723

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 13.0 (or later) for Windows. This software is available in the departmental computer lab and is available elsewhere on campus.

Class Format

This course follows the "flipped classroom" model, which means that lectures will be viewed on your own time prior to showing up for class. Instead of lecturing during class, the instructor will aid students in working through assignments that are based on the lecture. This model works only if students come to class prepared. Class time will be divided into two formats. On Tuesdays we will meet in a traditional classroom and work on exercises "by hand." By "by hand," I mean that students will not be using statistical packages. Students will likely find a computer useful for these exercises, however, as Excel is a great tool for doing the work by hand. On Thursdays we will meet in a computer lab and complete assignments using Stata.

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 (DRC). The DRC coordinates campus disability services for students. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at 257-2754 and via email at drc@uky.edu. Their web address is http://www.uky.edu/StudentAffairs/DisabilityResourceCenter.

Missed exams and assignments

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of

family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class.

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Classroom Behavior, Decorum and Civility

A statement could be included here asking students to be respectful to others in the class and engage in civil discourse when discussing topics that have a diversity of perspectives. Include information about policies regarding classroom behavior such as inappropriate use of electronic devices, carrying on conversations, arriving late, or any other issue that you deem important for maintaining civility in the classroom.

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 two 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). 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 Canvas.

Graduate students are required to complete all homework assignments. Undergraduates may choose to skip up to two homework assignments without any penalty to their grade.

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.

Date/topic	Prior to class…	Assignment due…
08/23 (Th): Syllabus review, course expectations	-	-
08/28 (Tu): The nature of descriptive statistics	*Be prepared for WW Chp. 1-2 (read the chapters; watch the lectures) *Watch "Types of Data" at: http://www.youtube.com/watch?v=hZxnzfnt5v8&feature=related *Watch "Introduction to Statistics" at: http://www.youtube.com/watch?v=YHXadaW_lso&feature=BFa&list=PLA58DD58DF39B727A *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=DFlbFv1VN0U&feature=BFa&list=PLAB61A8CC9BBCB9A5	-
08/30 (Th): No class (APSA conference)		
09/04 (Tu) and 09/06 (Th): No class (Clay at a conf)		
09/11 (Tu): The nature of descriptive statistics (continued)	*Watch "Stata Basics" tutorial on Canvas *Watch "Excel Basics" tutorial on Canvas	-
09/13 (Th): Probability	*Be prepared for WW Chp. 3 (read the chapter; watch the lecture) *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	Turn in "Homework 1" at the beginning of class
09/18 (Tu): Probability distributions	*Be prepared for WW Chp. 4 (read the chapter; watch the lecture) *Watch "Chapter 5: Probability Distributions" at: http://www.youtube.com/watch?v=yng9pQQmJUE&feature=BFa&list=PLA58DD58DF39B727A	Turn in "Homework 2" at the beginning of class
09/20 (Th): Probability distributions (continued)	-	-
09/25 (Tu): Two random variables	*Be prepared for WW Chp. 5 (read the chapter; watch the lecture) *Watch "BFIP13 Joint Prob, Cov, and Correlation" at: http://www.youtube.com/watch?v=B_fxitnTIjo&feature=topics	Turn in "Homework 3" at the beginning of class
09/27 (Th): Two random variables (continued)	-	-

Date/topic	Prior to class…	Assignment due…
09/27-10/01: Exam #1 over WW Chp. 1-5	This will be a 24 hour, take-home exam. The exam window opens at 5pm on 09/27 and the exam must be completed by noon on 10/01. You can take the exam during any 24hr period during this window. Turn your materials into my mailbox in POT 1613.	-
10/02 (Tu): Sampling and point estimation	*Be prepared for WW Chp. 6-7 (read the chapter; watch the lecture) *Watch "Chapter 6: Sampling Distributions" at: http://www.youtube.com/watch?v=LfgPmKTdUsE&feature=BFa&list=PLA58DD58DF39B727A Watch "Chapter 7: Estimation" at: http://www.youtube.com/watch?v=mD56-raCdGg&feature=BFa&list=PLA58DD58DF39B727A	Turn in "Homework 4" at the beginning of class
10/04 (Th): Sampling and point estimation (continued)	-	-
10/09 (Tu): Confidence intervals and hypothesis testing	*Be prepared for WW Chp. 8-9 (read the chapters; watch the lectures) *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 *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	Turn in "Homework 5" at the beginning of class
10/11 (Th): Confidence intervals and hypothesis testing (continued)	-	-
10/16 (Tu): Analysis of variance (ANOVA)	*Be prepared for Chp. 10 (read the chapter; watch the lecture) *Watch "Statistics 101: ANOVA, A Visual Introduction" at: https://www.youtube.com/watch?v=0Vj2V2qRU10 *Watch "Statistics 101: One-way ANOVA (Part 1), A Visual Guide" at: https://www.youtube.com/watch?v=JgMFhKi6f6Y *Watch "Statistics 101: One-way ANOVA (Part 2), Understanding the calculation" at: https://www.youtube.com/watch?v=UrRYITjDOww	Turn in "Homework 6" at the beginning of class

Date/topic	Prior to class…	Assignment due…
10/18 (Th): Analysis of variance (ANOVA) (continued)	-	-
10/18-10/22: Exam #2 over WW Chp. 6-10	This will be a 24 hour, take-home exam. The exam window opens at 5pm on 10/18 and the exam must be completed by noon on 10/22. You can take the exam during any 24 period during this window. Turn in your materials into my mailbox in POT 1613.	-
10/23 (Tu): Extensions of WW	We'll be covering info that WW missed. There is no chapter to read. Be sure to watch the lecture on Canvas.	-
10/25 (Th): Extensions of WW (continued)	-	-
10/30 (Tu): Fitting a line	*Be prepared for WW Chp. 11 (read the chapter; watch the lecture) *Watch "Chapter 10: Regression" at: http://www.youtube.com/watch?v=MIqyiGvrUXE&feature=related *Watch "Regression 1: What is regression?" at: http://www.youtube.com/watch?v=aq8VU5KLmkY	Turn in "Homework 7" at the beginning of class
11/01 (Th): Fitting a line (continued)	-	-
11/06 (Tu): Simple regression	*Be prepared for WW Chp. 12 (read the chapter; watch the lecture) *Watch "Gauss-Markov assumptions part 1" at: http://www.youtube.com/watch?v=NjTpHS5xLP8 *Watch "Gauss-Markov assumptions part 2" at: http://www.youtube.com/watch?v=ti9h-Au8LQw	Turn in "Homework 8" at the beginning of class
11/08 (Th): Simple regression (continued)	-	-
11/13 (Tu): Unusual and influential data	*We'll be covering info that WW missed. There is no chapter to read. Be sure to watch the lecture on Canvas.	Turn in "Homework 9" at the beginning of class
11/15 (Th): Unusual and influential data (continued)	-	-
11/20 (Tu): Review, catch up		
11/27 (Tu): Multiple regression	*Be prepared for WW Chp. 13 (read the chapter; watch the lecture) *Watch "4 3 Lecture 8a Introduction to Multiple Regression 2322" at: http://www.youtube.com/watch?v=Ek4bIe-DuMA *Watch "STATA Tutorials: Multiple Linear Regression" at: http://www.youtube.com/watch?v=NbSjQ0n-Gss	Turn in "Homework 10" at the beginning of class

Date/topic	Prior to class…	Assignment due…
11/29 (Th): Multiple regression (continued)	-	-
12/04 (Tu): Regression extensions	*Be prepared for WW Chp. 14 (read the chapter; watch the lecture) *Watch "Multiple regression 3 – dummy variables" at: http://www.youtube.com/watch?v=MAsZVPh0F-c *Watch "Multiple Regression – Dummy variables and interactions – example in Excel" at: http://www.youtube.com/watch?v=H07l1zgM-cw	-
12/06 (Th): Regression extensions (continued)	-	-
12/09-12/14: Final exam	*This will be a 24 hour, take-home exam. The exam window opens at 6am on 12/09 and the exam must be completed by noon on 12/14. You can take the exam during any 24hr period during this window. Turn your materials into my mailbox in POT 1613.	-