POLS 504: Quantitative Methods in Political Science

Washington State University, Spring 2014
Mondays, 2:10-5 p.m., CUE 216

Instructor: Dr. Travis Ridout
Email: tnridout@wsu.edu
Phone: 509-335-2264
Office Hours: Wednesdays, 11-12 noon; Fridays, 12 noon-1 p.m.
816 Johnson Tower
Course webpage: www.wsu.edu/~tnridout/ps504.htm

Introduction

In this course, we will be taking a whirlwind tour of statistical techniques, from the very basic (calculating means and standard deviations) to the more advanced (assessing heteroskedasticity and performing logistic regression).

Readings

There is one book available for purchase: Moore, David S. and George P. McCabe. 2005. *Introduction to the Practice of Statistics*, 5th edition. New York: W.H. Freeman.

I am assigning this edition, as opposed to the 6th edition or 7th edition, simply to save you money. Truly, introductory statistics have not changed much since 2005!

We will also be reading a few chapters from Gujarati's *Basic Econometrics*, 4th Edition. I will make portions of this book available in a box the PPPA office in Johnson Tower. Remove them from that room only to make copies.

Grading

A total of 1000 points are available for this course. They will be distributed as follows:

1. Five homework assignments (60 points each). These assignments will be due at various times throughout the semester and will consist largely of math problems and computer exercises. You may work with other students on the assignments, but merely copying someone else's work is not acceptable. You must also show all of the steps you took to reach the final answer.

2. Two exams (300 points each). The midterm exam will be held in class on March 10, and we will schedule the final exam for a mutually agreeable time during exam week. Exams will focus on interpretation, though you will be asked to perform some calculations as well.

3. Class participation and attendance (100 points). Class participation and attendance are required. *Notify me before class if you must be absent*. I also expect that everyone will make contributions to our class discussions.

My grading scale is:

A:	900-1000
A-:	800-899
B+:	770-799
B:	730-769
B-:	700-729
C+:	670-699
C:	630-669
C-:	600-629
D+:	570-599
D:	500-569
F:	0-499

Software

Your homework assignments will require you to use Stata, a statistical software program. Stata offers, by far, the best combination of user friendliness and power of any statistical software program. Once you learn it, you will wonder why you ever spent time with other, inferior software programs (that will remain unnamed).

Stata comes in three main flavors: Small Stata, Stata/IC and Stata/SE. Small Stata does not allow you do much, but it will be sufficient for the assignments in this course. Stata/IC is the next biggest size and allows you to do everything that Stata/SE can do, except for handling extremely large datasets. Stata/SE is the most advanced version of Stata and will allow you to handle extremely large data sets and complex computations. As a graduate student, you are entitled to a special low rate. Go to the Stata.com website, click on "purchase" and "order Stata". Pick "educational" license and then note that you are a student. Be willing to fork over $189 for the perpetual license of Stata/IC (meaning you may use the program forever). Alternatively, you may also purchase a six-month license of Small Stata for $35—long enough to get you through this course. But I suspect you will want to use Stata for the rest of your career, and so you may want to invest in a one-year or perpetual license for Stata/IC.

If you are feeling particularly nerdy and want to be able to typeset beautiful math, read about, download and install MiKTeX (miktex.org), which is an implementation of TeX/LaTeX designed for use with Windows. You'll need to learn a slightly new language—e.g., in order to get 3^2 to appear you'll type 3^2—but it is well worth learning if you plan to do much work with statistics.

Learning Outcomes and Assessment

Student Learning Outcomes for this course: At the end of this course, students should be able to:	Course Topics/Dates The following topic(s)/dates(s) will address this outcome:	Evaluation of Outcome: This outcome will be evaluated primarily by:
Explain the appropriateness of certain statistical techniques for use with particular types of data	Throughout course	Midterm examination; final examination
Develop fluency with using statistical software	Throughout course	Homeworks 1-5
Explain output generated by statistical software	Throughout course	Homeworks 1-5; midterm examination; final examination
Read and understand research in political science that employs quantitative techniques	Throughout course	Homeworks 1-5

Other information

If there are things I talk about in class that you do not understand, do not hesitate to talk to me about them. I am here to help you learn the course material. And if there are other matters that you think should be brought to my attention, let me know.

ELECTRONIC DEVICES.   The use of cell phones, smart phones, or other mobile communication devices is disruptive, and is therefore **prohibited** during class. All such devices must be turned off. Those using such devices must leave the classroom for the remainder of the class period.

USE OF LAPTOPS/TABLETS. Students are permitted to use computers during class for note-taking only. Those using computers during class for other purposes must leave the classroom for the remainder of the class period. I reserve the right to ban the use of laptops/tablets entirely if the use of such devices interferes with the learning environment.

LATE ASSIGNMENTS. Assignments must be turned in at the beginning of class on the date they are due or they will be considered late. For each day an assignment is late, I will subtract 10 percent of the assignment's total point value from your score.

ACADEMIC INTEGRITY.   Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will FAIL THE COURSE and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions.

DISABILITY ACCOMMODATION. Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center

(Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist: 509-335-3417, http://accesscenter.wsu.edu, Access.Center@wsu.edu.

SAFETY AND EMERGENCY PLAN. Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.

Course Outline

Week 1 (January 13): Looking at Data Distributions
Assignments: Read MM1
Familiarize yourself with Stata. I have posted several tutorials on my website.

Week 2 (January 27): Looking at Data Relationships
Assignments: Read MM 2
HW 1 distributed

Week 3 (February 3): Producing Data and Probability
Assignments: Read MM 3.1-4.2
Read "Dead Grandmothers" article from my website
HW 1 due

Week 4 (February 10): Probability and Distributions
Assignments: Read MM 4.3-5.2

Week 5 (February 24): Inference
Assignments: Read MM 6.1-6.3, 7.1
HW2 distributed

Week 6 (March 3): Inference for Distributions
Assignments: Read MM 7.2-8.2
HW 2 due

Week 7 (March 10): Exam I

Week 8 (March 24): Two-Way Inference and Regression
Assignments: Read MM 9.1-10.1

Week 9 (March 31): Regression
Assignments: Read MM 10.2-11.2

HW 3 distributed

Week 10 (April 7): Regression Diagnostics I
      Assignments: Read Gujarati 9-12
                   HW 3 due

Week 11 (April 14): Regression Diagnostics II
      Assignments: Read Gujarati 11-12
                   HW4 distributed

Week 12 (April 21): ANOVA
      Assignments: Read MM 12-13
                   HW4 due
                   HW5 distributed

Week 13 (April 28): Binary, Count, Ordered, Multinomial and Duration Models
      Assignments: Read MM 16
                   Read Gujarati 15.1-15.10, 15.12-15.14
                   HW5 due