

POLI 4001

Introduction to Quantitative Analysis in Political Science

Class and instructor information

Semester: Spring 2022
Classroom: 102 Stubbs Hall
Class period: MWF 9:30 – 10:20
Instructor: Dr. Leonard Ray (lray2@lsu.edu)
Office: 208C Stubbs Hall
Office Hours: 9:30 - 11:30 T TH or by appointment

Course Description

Most of your Poli Sci professors went into academia because research is fun. POLI 4001 will equip you to play with data, and see what all the fun is about.

This course is intended to teach students how to prepare and execute an original empirical research project of their own design using basic tools of quantitative analysis. The course will provide hands on training with statistical software commonly used in the Social Sciences, and will cover common problems in the interpretation and misinterpretation of quantitative results. A review of basic statistics will include descriptive statistics, tests for bivariate relationships, and strategies for statistical control of third variables.

Upon completing this class, you should update the skills section of your resumé to add “Basic data analysis using SPSS.” You have only scratched the surface of the field of data analysis, but will already have some marketable analytical and software skills.

Objectives

The four main objectives of this course are:

1. To teach students about the nature of quantitative research in Political Science.
2. To enable students to read quantitative Political Science research.
3. To train students to execute their own quantitative analyses of data.
4. To guide students in the professional presentation of their research results.

Requirements

Hands on lab assignments (from the SPSS Companion workbook) will develop the skills in applied quantitative analysis you will need to do your own quantitative research. Students will design and execute their own empirical research project putting these skills to use on a topic of their own choosing. Students will report the results of their research in an abbreviated (approx. 10 page) research paper. There are also two exams to test student mastery of course material

Graded work:

Lab exercises: 25%
Research Project: 25%
Midterm Exam: 25%
Final Exam: 25%

Grading Scale:

100 ≥ A+ ≥ 98 > A ≥ 92 > A- ≥ 90
90 > B+ ≥ 88 > B ≥ 82 > B- ≥ 80
80 > C+ ≥ 78 > C ≥ 72 > C- ≥ 70
70 > D+ ≥ 68 > D ≥ 62 > D- ≥ 60
60 > F

Research Project

The research project for this course is somewhat different than the usual college term paper. Students are not expected to summarize the published research on their topic. Instead, they conduct an original research project of their own. This research project should be an original analysis of data. These data can be obtained from a variety of sources, including surveys, official statistics, direct observation, archives, and data used in previously published work. It is important to select a topic early, and identify the data to be used well before the end of the semester. This is particularly important if students plan to collect their own data from scratch- a time consuming process. For general guidance on conducting and writing up a research project, read Pollock SPSS Companion Ch. 11. For details on the assignment, see the instructions on moodle.

Lab exercises:

The assigned workbook contains exercises to be done using SPSS (or STATA) statistical software. The course is taught in a computer lab, and I will set aside one class period for each workbook chapter to give you an opportunity to start your work with my assistance. You will need to complete these workbook chapters outside of class. The SPSS software is available in public computer labs on campus, through the LSU virtual computer lab, or can be purchased for use on our personal machine. You have one week to complete each chapter from the lab workbook. The workbook is perforated so you can tear out and hand in the lab assignments. If you do not want to tear up your workbook- you can photocopy the pages, and fill out the answers on the copies. If you cannot make it to campus to hand in your work, you can scan the pages (there is even a phone app) and post your work on Moodle.

Readings:

Course readings will be drawn from the assigned textbook and workbook available at the university bookstore and from journal articles, book chapters, and other material posted online. Readings should be completed before the class period(s) for which they are assigned so that you can follow the lecture better.

Required Textbooks and material:

A USB drive with at least 1 gigabyte free space

Phillip Pollock. (text) The Essentials of Political Analysis Sixth edition ISBN 978-1-5063-7961-6

Phillip Pollock. (workbook) An SPSS Companion to Political Analysis Sixth edition. ISBN 978-1-5063-7965-4.

Phillip Pollock. (alt workbook) A Stata® Companion to Political Analysis Fourth Edition ISBN 9781506379708

Which workbook should I use?

There are different editions of the workbook for this course, each designed for a different statistical software program. I assume that many of you will prefer using SPSS, primarily because it is available for free in the LSU computer labs, and through the LSU virtual computer lab. The alternate workbook is based on STATA, which is only available in the computer lab in Stubbs 102, or by purchasing a personal copy. If for some reason you would prefer to do the exercises in STATA, feel free to do so- but be prepared to spend \$48 for a six month subscription. Note that a student version of SPSS can also be purchased for about the same price if you find the public labs and virtual labs inconvenient. SPSS is more commonly used in business, while STATA is the go-to statistics program in political science. if you are working with a faculty member on a research project, you may want to ask which software package they use. If you plan to use STATA, let me know, and I will be sure to present examples using both software packages.

Course Schedule

Most Monday and Wednesday meetings will cover course material. I will try to set time aside on Fridays for you to work on lab exercises. On lab days, you should read the relevant workbook chapter before class.

Week 1, January 19, 21

Lecture: Concepts and Measurement Quality

READINGS: Pollock *Essentials*- Intro and Chapter 1
Nagler 1995 "Coding Style" (on Moodle)

Week 2, January 24, 26, 28

Lectures: Levels of Measurement and Graphic presentations of data

READINGS: Pollock *Essentials* Ch 2
S. Stevens, "On The Theory of Scales of Measurement" (on Moodle)

Jan 28 Lab: SPSS Companion, Getting Started and Chapter 1 and Chapter 11

Week 3, Jan 31, Feb 2, 4

Lecture: Descriptive Statistics wrap up

Feb 4 Lab: SPSS Companion Chapter 2

Week 4, Feb 7, 9, 11

Lecture: Hypotheses and comparisons

READINGS: Pollock *Essentials*-Ch 3

Feb 11 Lab: SPSS Companion Chapter 3

Week 5, Feb 14, 16, 18

Lecture: Bivariate Comparisons and research design

READINGS: Pollock *Essentials*-Ch 4

Feb 18 Lab: SPSS Companion Chapter 4

Week 6, Feb 21, 23 25

Lecture: Research design continued, Controlling for third variables

READINGS: Pollock *Essentials*-Ch 5

Feb 25 Lab: SPSS Companion Chapter 5

Mardi Gras Holiday Feb 28, March 2

Week 7 March 4

March 4 Midterm

Week 8, March 7, 9, 11

Lectures: Sampling and Statistical Inference

READINGS: Pollock *Essentials*-Ch 6

And Ronald Fisher, *The Design of Experiments*. Chapter 2. (moodle)

Spring Break March 14, 16, 18

Week 9, March 21, 23, 25

Lectures: Tests of Significance and Measures of Association

READINGS: Pollock Essentials-Chapter 7

March 25 Lab: SPSS Companion Chapter 7

Week 10. March 28, 30, April 1

Lectures: Hypothesis testing about the mean

April 1 Lab: SPSS Companion Chapter 6

Week 11, April 4, 6, 8

Lectures: Laying it on the line: Correlation and Regression

READINGS: Pollock Essentials-Ch 8

April 8 Labs: SPSS Companion Chapter 8

Week 12, April 11, 13

Lectures: Writing up statistical results

READINGS: TBA

Good Friday holiday April 15

Week 13, April 18, 20, 22

Lectures: dummy variables and interaction effects

April 22 Lab: SPSS Companion Chapter 9

Week 14: April 25, 27, 29

Lecture: Curveball: Logistic Regression

READINGS: Pollock Essentials-Ch 9

April 29 Lab: SPSS Companion Chapter. 10

Week 15 May 2, 4, 6

Lectures: Wrap up and cautionary notes

READINGS:

Abelson Ch 4 "Styles of Rhetoric" (moodle)

Mock and Weisberg 1992. "Political Innumeracy" (moodle)

Final Paper Due May 7 (midnight)

Final Exam Monday May 9 10:00-12:00