PA 9950

# Quantitative Research Methods in Public Administration

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Spring 2017. CPACS 124.
Tuesdays 5:30pm–8:10pm.

Office Hours: By appointment.

## COURSE OVERVIEW

This course is an introduction to the theory and application of linear modeling to economic and public policy problems. The course focuses on the techniques used in empirical research with a particular focus on intuitive understanding. Problem sets will introduce real world applications and teach you the fundamentals of statistical programming in Stata. No prior knowledge of computer programming in necessary.

The focus of this course will be to provide you with the theoretical and practical skills necessary to conduct your own empirical research. You are encouraged to work in groups on the problem sets, however, **you must turn in your own homework and write up the answers on your own**.

*All students are responsible for maintaining the highest standards of honesty and integrity in every phase of their academic careers. The penalties for academic dishonesty are severe and ignorance is not an acceptable defense.*

## COURSE OBJECTIVES

1. The fundamental purpose of this course is to develop the skills necessary to conduct high-quality empirical social science research. Students must be able to understand both the theory and application of statistical methods in the social sciences.

2. Theory: students will be familiar with the statistical assumptions underlying the use of multivariate regression techniques, under what conditions these assumptions are violated, the implications for your research of violating these assumptions, and alternative estimators that help correct for these violations.

3. Practice: students must be able to demonstrate a working knowledge of how to diagnose and test empirical models. Additionally, students must aster the techniques for correcting models that violate statistical assumptions.

## TEXTS & MATERIALS

### REQUIRED

Wooldridge, Jeffrey M. 2016. *Introductory Econometrics: A Modern Approach* 6e. Cengage.
ISBN: 978-1305270107

Kennedy, Peter. 2008. *A Guide to Econometrics* 6e. Wiley-Blackwell. ISBN: 978-1405182577

Stata/IC version 12 or later (current version is 14)
It is required that you have ready access to Stata. It is available in our lab and if you wish to purchase a copy for use on your own computer, you can do so through Stata's website ($198 for Stata/IC 14, perpetual license).

### RECOMMENDED

Baum, Christopher F. 2006. *An Introduction to Modern Econometrics Using Stata*. Stata Press.
ISBN: 978-1597180139

Hagle, Timothy M. 1995. *Basic Math for Social Scientists: Concepts* Sage Publications.
ISBN: 978-0803958753

Gill, Jeff. 2006. *Essential Mathematics for Political and Social Research* Cambridge University Press.
ISBN: 978-0521684033

## EVALUATION

### PROBLEM SETS – 65%

This course takes a "hands-on" approach to learning how to use econometric models in implementing well-crafted and theoretically driven research designs. The ultimate aim of the course is to prepare you to publish in top public administration and policy journals, where expectations of analytical rigor have increased significantly over the past several years. A series of challenging problem sets will require you to:

- Theoretically build and empirically estimate and diagnose models using Stata;
- Interpret and critically evaluate findings in empirical work that appears in public administration and policy journals; and
- Respond in a clear and cogent fashion to mock journal reviews in which your empirical approach and techniques are challenged.

**You are strongly encouraged to collaborate on problem sets.**

### EMPIRICAL PAPER – 35%

A major requirement for the course is to complete an empirical paper in which you: 1) implement one of the methods covered in this course; 2) discuss in detail potential threats to validity; and 3) offer a thorough analysis of potential violations of the assumptions underlying your model. The paper should highlight your empirical work; the literature review and discussion of theory should be shorter than in a paper submitted

for publication. However, you must provide sufficient theoretical justification for the type of model you estimate as well as the variables incorporated into it.

**Your empirical paper is due April 25th to me and your discussant, and you will present it on May 2nd.** You should present your paper as you would at a professional conference or in the context of a "job talk." Time allotted will depend on the number of students enrolled in the course. Please note that you will be evaluated on the basis of the *quality* and *professionalism* of your paper, your presentation, and your responses to questions. If you are unfamiliar with the professional stanards of presenting, reviewing, and critiquing an academic paper, please read Daniel Hamermesh's The Young Economists Guide to Professional Etiquette.

## POLICIES

- The course website is primarily Blackboard; however, all data and code will be housed on GitHub.
- Late assignment will not be accepted without prior arrangement. A penalty will be assessed on all late assignments.
- You may appeal any grade by paper-clipping a typewritten, hard-copy memo to the original assignment. *Do not write on the original assignment.* In the appeal: 1) Specify the section(s) or question(s) to which you are referring; and 2) Provide evidence from the assigned reading and lecture material that your original response is worthy of a higher grade. Please note that your grade may go up or down or stand as-is as a result of the appeal.
- If you have or believe you have a disability that may impede your learning, please contact the Disability Services Office. I will make every effort to accommodate you in accordance with UNO policy, procedures, and recommendations. Additional information can be found here.

## ACADEMIC HONESTY

All students at the UNO are expected to conduct their academic affairs in an honest and responsible manner. Any student found guilty of dishonesty in academic work shall be subject to disciplinary actions. Acts of academic dishonesty include, but are not limited to:

- plagiarism, i.e., the intentional appropriation of the work, be it ideas or phrasing of words, of another without crediting the source;
- cheating, i.e, unauthorized collaboration or use of external information during examinations; assisting fellow students in committing an act of cheating;
- falsely obtaining, distributing, using or receiving test materials or academic research materials; submitting examinations, themes, reports, drawings, laboratory notes, research papers or other work as one's own when such work has been prepared by another person or copied from another person (by placing his/her own name on a paper, the student is certifying that it is his/her own work); or
- improperly altering and/or inducing another to improperly alter any academic record.

Additionally, graduate students are more likely to assume roles as active scholars. With these roles come added responsibilities for academic honesty. For such individuals academic honesty requires an active pursuit of truth not just an avoidance of falsehood. This pursuit includes but is not limited to:

- providing a full and complete representation of any scholarly find, be it experimental data or information retrieved from archives;
- taking care that the resources of the University (e.g., library materials, computer, or laboratory equipment) are used for their intended academic purposes and they are used in a manner that minimizes the likelihood of damage or unnecessary wear;
- assuring that one's co-workers are given due credit for their contributions to any scholarly endeavor; respecting a diversity of opinion and defending one's colleagues as well as one's own academic freedom; respecting the rights of other students who may come under the tutelage of the graduate student and being fair
- and impartial in grading and other forms of evaluation; and seeking permission from an instructor when submitting to that instructor work which the student has submitted for a course taken in the past or intends to submit for another course currently being taken.

In cases of alleged academic dishonesty, the instructor shall attempt to discuss the matter with the student and explain the sanction(s) which he/she plans to impose. In the event that the student challenges the allegation of academic dishonesty, or is not satisfied with the sanctions(s) imposed by the instructor, the student may file an appeal according to the approved appeal policies of the University of Nebraska Graduate College.

## GENERAL COURSE OUTLINE

Chapter 1 and Appendices A-C: Introduction and math refresher
Chapter 2: Simple Regression Model
Chapter 3: Multiple Regression Analysis: Estimation
Chapter 4: Multiple Regression Analysis: Inference
Chapter 6: Multiple Regression Analysis: Further Issues
Chapter 7: Multiple Regression Analysis with Qualitative Information: Binary (or Dummy) Variables
Chapter 8: Heteroskedasticity
Chapter 9: More on Specification and Data Issues
Chapter 10: Basic Regression Analysis with Time Series Data
Chapter 13: Pooling Cross Sections Across Time: Simple Panel Data Methods
Chapter 14: Advanced Panel Methods
Chapter 15: Instrumental Variables Estimation and Two Stage Least Squares
Chapter 16: Simultaneous Equations Models