

POS 6747 – Section 073C – Spring 2013
Topics in Political Methodology: Linear Models
Department of Political Science, University of Florida

T: Periods 2-3; Room: And 021 then Computer Lab 4th period

Instructor:

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Course Description and Objectives

This course is designed to cover intermediate level statistical data analysis for graduate students in political/social sciences. The course specifically deals with various topics within the realm of multiple linear regression modelling. The main goal of the course is to encourage the students to acquire a good and working knowledge of how the statistical analysis of data is conducted using linear models. The course specifically offers an understanding of how multiple linear regression works under various conditions. The course also concentrates on studying some of the potential drawbacks and limitations and how we can overcome them. The linear regression model is key to understanding quantitative social science research in general, both as a technique in itself and as a conceptual framework. The linear regression model also provides the baseline model for more complex and sophisticated techniques. Many models were developed by addressing one or more problems encountered in linear regression models. Others are extensions to the linear model, and some others can only be understood in relationship with the linear model. Due to time constraints, the course selectively dwells on a limited number of these extensions and modifications of the linear model. It is my hope that by the end of the semester, three goals will have been achieved:

- (1) you should have improved your already acquired skills in understanding and critically evaluating the quantitative professional literature
- (2) you should be able to design and carry out statistical projects that employ linear model techniques for testing substantive theories
- (3) you should be able to explore and study more advanced models and techniques in future projects.

Requirements and Evaluation

The requirement for this course is simple: work diligently and persistently. This includes attending classes, doing the readings carefully before the seminar meets, and working regularly on the problem sets and the research paper. Each student should expect to be spending many hours learning how to excel in using the Stata software commonly used to estimate the models discussed in class.

There will be eight homework assignments from the Wooldridge book (a combination of problems and computer exercises) that the students must complete and turn in. The homework assignments are due on the specified dates; no late submission is acceptable. In addition, the students are strongly encouraged to solve many of the problems and computer exercises at the end of each chapter of the Wooldridge textbook. This is a good way to put into practice the concepts learned in each chapter as well as provide you with much needed exercise to effectively understand and master the purported statistical skills.

A major component of the course evaluation will be a term research paper. Each student will produce a manuscript of high quality using an appropriate modelling strategy. Both my assistant and I will work closely with the students on their projects.

Tuesday sessions will consist of lectures while the lab ones will (mostly) consist of solving hands-on problems and computer exercises held in the department computer lab and will be led by my teaching assistant.

Distribution of Grades

1. **24%:** 8 weekly graded sets of **problems** from the Wooldridge book: each will count for 3% of the final grade. The homework assignments will count for 24% of the overall grade. No excuse will be accepted for not submitting assignments. All assignments are due typed and double-spaced at the beginning of class on their respective due dates. No late submission accepted for any reason (except when justified with officially acceptable documentation).
2. **24%:** 8 weekly graded sets of **computer exercises** also from the Wooldridge book: each will count for 3% of the final grade. The computer exercises will count for 24% of the overall grade. No excuse will be accepted for not submitting assignments. All assignments are due typed and double-spaced at the beginning of class on their respective due dates. No late submission accepted for any reason (except when justified with officially acceptable documentation). These computer exercises are excellent practices in learning how to excel in using Stata.
3. **42%:** A research paper on a topic chosen by the student in consultation with the instructors (see down below). The goal is to produce a high quality manuscript, using a statistical model (or models) discussed in the course. The research paper is due on the last day of classes and counts for 42% of the overall grade (**30% for the actual paper and 12% for ppt paper presentation**).
4. **10%:** Practice of Stata in Computer Lab for at least **TWO hours every week** counts for 10% of the overall grade. A record of practice will be held for each student. Every student is required to practice for at least 20 hours (i.e., 10 sessions) during the whole semester. A completed 2-hour practice is worth 1% of the overall grade (10 sessions → 10%). No excuses will be acceptable for any reason. If you miss the practice for any one week you must make it up in another week, but you cannot have more than two sessions per any one week.

Required Reading Materials

Wooldridge, Jeffrey M. 2009. Introductory Econometrics: A Modern Approach. 4th edition. South-Western CENGAGE Learning.

Computer Requirements

All models covered in this class can be estimated using the Stata software package. It is a must that you have a computer account and password so that you can use the computers in the Anderson datalab. Stata is available on all of the Anderson Hall datalab computers.

Specifics on the Research Paper

In order for the instructors to provide guidance in the preparation of this paper, you will be required to turn in various brief intermediate papers throughout the semester. Always submit 2 copies of each assignment – one electronic file and one hard copy. All assignments, both hard and electronic copies, should be handed in to my teaching assistant.

Each student must:

- Find a published paper that interests you and that applies a statistical method comparable to the material covered in this course. **Date: January 22 – one page summary**
- Obtain the data from the authors (or elsewhere), or the author if at all possible. **Date: February 5 – one page report**
- Replicate the published results as nearly as possible. **Date: March 12 – submit a multiple-page report**
- You **must extend** the analysis in some way. You could, for example:
 - Suggest a more appropriate functional form for the estimation and re-estimate.
 - Argue that one or a set of important variables were omitted and conduct the analysis anew.
 - Argue that the results are likely to be sensitive to sample selection or variable measurement etc. and then conduct appropriate analyses to address that possibility.
 - Extend the data or use a different data set to test the theory.
 - Any other good idea that you might have.
 - The final product should be **15-20 pages long**, including the bibliography. **Date: April 23**
- Prepare a ppt presentation for the last day of classes – April 23

RULES OF THE UNIVERSITY OF FLORIDA

- [6C1-4.041 Student Honor Code and Student Conduct Code: Scope and Violations.](#)
- **THERE IS A ZERO-PERCENT TOLERANCE ON PLAGIARISM.**

WEEKLY READINGS, HOMEWORK ASSIGNMENTS AND OUTLINE OF THE COURSE			
Week	Date	TOPIC	Chapter
1	1 – 8	The Nature of Econometrics and Economic Data.	1
2	1 – 15 HMWK 1	The Simple Regression Model 2.1, 2.3, 2.6, C2.1, C2.2, C2.4 – Due at the beginning of the following class	2
3	1 – 22 HMWK 2	Multiple Regression Analysis: Estimation 3.3, 3.4, 3.5, C3.2, C3.6, C3.9 – Due at the beginning of the following class	3
4	1 – 29 HMWK 3	Multiple Regression Analysis: Inference 4.3, 4.4, 4.6, C4.1, C4.7, C4.10 – Due at the beginning of the following class	4
5	2 – 5 HMWK 4	Multiple Regression Analysis: OLS Asymptotics 5.1, 5.2, 5.4, C5.1, C5.2, C5.4 – Due at the beginning of the following class	5
6	2 – 12 HMWK 5	Multiple Regression Analysis: Further Issues 6.3, 6.6, 6.8, C6.2, C6.9, C6.12 – Due at the beginning of the following class	6
7	2 – 19 HMWK 6	Multiple Regression Analysis with Qualitative Information: Binary (or Dummy) Variables 7.2, 7.3, 7.10, C7.4, C7.10, C7.14 – Due at the beginning of the following class	7
8	2 – 26 HMWK 7	Heteroskedasticity 8.2, 8.4, 8.5, C8.2, C8.5, C8.8 – Due at the beginning of the following class	8
Spring Break			
9	3 – 12 HMWK 8	More on Specification and Data Issues 9.1, 9.2, 9.6, C9.2, C9.6, C9.10 – Due at the beginning of the following class	9
10	3 – 19	Basic Regression Analysis with Time Series	10
11	3 – 26	Further Issues in Using OLS with Time Series Data	11
ISA Convention San Francisco April 2 – 7			
12	4 – 9	Serial Correlation and Heteroskedasticity in Time Series Analysis	12
13	4 – 16	Pooling Cross Sections across Time: Simple Panel Data Methods	13
14	4 – 23	Paper Presentations	