ECO 5420 - Fall 2021
Applied Econometrics

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Class meetings: TR 3:05 - 4:20 p.m., BEL 204

Course Description: The goal of this course is to provide you with basic tools for the analysis of cross-section and panel data. The course includes a general overview of regression analysis using ordinary least squares (OLS) estimation. Within that part of the course, we will discuss properties of the OLS estimator, interpretation of results, and hypothesis testing. A substantial part of the course will be devoted to the discussion of more advanced topics, such as instrumental variables estimation, panel data methods, and limited dependent variable (e.g. binary response) models. The emphasis of the course is on the practical usefulness and intuition behind various estimation methods. However, some degree of technicality should be expected. At the end of the course you should be able to choose the estimation method that is most appropriate for answering a particular policy question. You should also be able to formulate and estimate econometric models, test hypotheses, and interpret results.

Required Text: J.M. Wooldridge, *Introductory Econometrics: A Modern Approach*, 6$^{\text{th}}$ Edition, 2015.

Class Web Page: can be accessed through Canvas. Please check it regularly. Announcements, homework assignments, and other course-related materials will be posted there.

Evaluation: homework - 30%, midterm exam - 30%, final exam - 40%.

There will be five problem sets, which will be posted on FSU blackboard at least a week before the due date (each worth 6%). Regarding the first four problem sets, you are welcome to form study groups and discuss them with each other, but everyone should complete his/her own work independently. The last problem set will have to be completed in groups of three students, where the group assignment will be random. Problem sets will contain both theoretical questions and computer exercises. The software that we are going to use in this class is Stata, and it is available on computers in the graduate computer lab, as well as on the FSU Virtual Lab (more information is on https://its.fsu.edu/service-catalog/end-point-computing/myfsuvlab). You can also purchase a Stata license if you like (see https://www.stata.com/order/gradplan-sites/).

Problem set schedule:

Problem set 1:	Due Tuesday, September 21
Problem set 2:	Due Tuesday, October 12
Problem set 3:	Due Tuesday, November 9
Problem set 4:	Due Tuesday, November 23
Problem set 5:	Due Thursday, December 2

The midterm exam will take place on Thursday, October 14th, during the regular class time. No make-up midterm will be scheduled. Should you miss the midterm because of the illness or other valid excuse, the weight of the midterm will be shifted to the final exam. In such a case documentation will be required. Whenever possible, you should contact me before the exam regarding your absence.

The final exam will be on Tuesday, December 7th, from 5:30 - 7:30 p.m. There will be no make-up final scheduled, except for the cases of serious health problems, family emergency or exam conflict (see University policy).

Class attendance is strongly encouraged, although will not be enforced. Some of the covered topics will be rather advanced. By attending classes you will have a chance to not only hear the explanation of the material, but also ask questions and participate in class discussions. I strongly encourage you to attend all classes.

Course Outline and Reading Assignments:

1. Ordinary least squares (approximately 7 classes).

   - Basic concepts in probabilities and statistics in application to regression analysis
   - Simple and multiple regressions: Chapters 1, 2, and 3 (skim)
   - Dummy variables: Chapter 7
   - Hypothesis testing: Chapter 4
   - Heteroskedasticity: Chapter 8

3. Instrumental variables estimation and two stage least squares (approximately 7 classes): Chapter 15.

   - Motivation for using instrumental variables
   - Instrumental variables estimation
   - Potential problems with instrumental variables estimation
   - Testing for endogeneity and checking validity of the instruments

4. Panel data methods (approximately 8 classes): Chapters 13 and 14.

   - Pooling independent cross sections over time
   - Policy analysis and difference-in-differences estimator
   - First-difference estimator
   - Fixed effects and random effects estimators

5. Limited dependent variable models and sample selection corrections (approximately 5 classes): Chapters 7 and 17.

   - Linear probability model
   - Logit and Probit models for binary response
   - Goodness-of-fit measures for binary response models
   - Binary response models for panel data

Syllabus Change Policy
Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

University Attendance Policy
Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy
The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "... be honest and truthful and ... [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://dof.fsu.edu/honorpolicy.htm.)

Americans With Disabilities Act
Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; and (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.
This syllabus and other class materials are available in alternative format upon request.
For more information about services available to FSU students with disabilities, contact the:
Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
(850) 644-7164
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/