ECO 6374
ECONOMETRICS II
Spring 2017

Professor: Daniel Millimet
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Time: TuTh 11:00 – 12:20
Office Hours: TuTh 9:30-11:00, and by appointment

Description: This is a graduate level introduction to econometrics offered primarily to first-year Ph.D. economics students. The course is designed to provide a general introduction to econometric theory and application. The 'application' aspect entails becoming familiar with statistical software (Stata will be used in the course).

Prerequisite: ECO 6372, or its equivalent.

Requirements: The textbook is Econometric Analysis, by William Greene. The 7th edition is the most recent. Corrections and other information for the text can be found at http://pages.stern.nyu.edu/~wgreene/Text/econometricanalysis.htm. Other similar texts may be used as a substitute.

Grades will be based on three exams (75%) and 13 problem sets (25%). The problem sets will be of two types: (i) theoretical and (ii) computer assignments. The date for the first two exams has yet to be determined; the third exam will be a take-home exam given out on the final day of class. The exams will not be explicitly cumulative. Class attendance is mandatory (and be on time!).

Class Schedule
- First day of class: Tues, Jan 24
- Stata Introduction: Fri, Jan 27 (301S, 10:30-12:00)
- No class: Mar 14, Mar 16
- Last class: Thurs, May 4

Learning Outcomes
- Students will understand the importance of the assumptions underlying the Classical Linear Regression Model
- Students will demonstrate an understanding of how OLS works and its finite and asymptotic properties
- Students will conduct proper inference after using OLS to test single and multiple linear and non-linear hypotheses
- Students will understand the consequences for OLS when assumptions of the CLRM are violated, including when the data are measured with error
- Students will demonstrate knowledge of how instrumental variables estimation works and its finite and asymptotic properties
- Students will develop and prove competency in Stata in order to apply the techniques learned

University Policies

- Disability Accommodations: Students needing academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit http://www.smu.edu/Provost/ALEC/DASS to begin the process. Once registered, students should then schedule an appointment with the professor as early in the semester as possible, present a DASS Accommodation Letter, and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement.

- Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)
Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)

OUTLINE:

1. Introduction: Chapter 1
2. Classical Multiple Linear Regression Model: Chapter 2; Chapter 3; Chapter 4 (4.1 – 4.3 only)
3. Hypothesis Testing: Chapter 5 (5.1 – 5.7 only)
   **EXAM I (PS1-2, CPS1-3)**
4. Asymptotics: Chapter 4 (4.4 only)
5. Multicollinearity: Chapter 4 (4.7.1 – 4.7.3 only)
6. Functional Forms: Chapter 6
7. Nonlinear Least Squares: Chapter 7 (7.1 – 7.2 only)
8. Model Selection: Chapter 4 (4.7.6 only); Chapter 5 (5.8 – 5.10 only); Castle et al., *Journal of Economic Surveys*, 2011, 1-33; Horowitz, *Canadian Journal of Economics*, 2015, 389-407
   **EXAM II (PS3-5, CPS 4)**
9. Generalized Least Squares: Chapter 9
11. Measurement Error: Chapter 8 (8.5 only); Hausman, *Journal of Economic Perspectives*, Fall 2001, 57-68
12. Systems of Regressions: Chapter 10
   **EXAM III (PS6-7, CPS 5-6)**

OUTLINE (Econometrics III):

13. Maximum Likelihood Estimation: Chapter 14
14. Limited Dependent Variable Models: Chapters 17 – 19
15. Time Series Methods: Chapters 20 – 21
16. Panel Data: Chapters 11, 13