Jeff Grogger   Winter 2018
Harris School   University of Chicago
                        PP 420: Applied Econometrics

Winter 2018: TTh 1:30-2:50 pm, Room 140B

Instructor: Jeffrey Grogger
                         139 Harris School
                         jgrogger@uchicago.edu
                         (773) 542-3533
                         Office hours: TBA

Teaching Assistant:

Name	Email	Section time/place
Alp Tuncay	tuncay@uchicago.edu	TBA
Eunki Min	wva2nuct@gmail.com	TBA

NOTE: Due to a scheduling conflict, there will be no class on Thursday, January 4. The last class will be held on Thursday, March 8.

Web site: All materials for the class will be posted to its site on Canvas.

Course content: This class covers basic Gauss-Markov theory and some extensions. Think of it as a theoretical course for applied researchers.

Prerequisites: Matrix algebra and Stat 244.

Reference: The text for the class is William Greene, *Econometric Analysis*, 7th edition. If you choose to use an earlier edition, the responsibility for cross-walking the reading assignments lies with you.

Grading: There will be a four problem sets and a final exam. Problem sets will include paper-and-pencil problems and estimation exercises.

Problem sets: Students may work together on problem sets but each student must write up his/her answer set individually. Problem sets will count for 2/3 of the course grade.

Problem sets will be posted to the website as soon as they are available. Answer keys will be posted to the website shortly after class on the date that the problem sets are due. Therefore, problem sets are due in class on the due date and *no late problem sets will be accepted*. The due date for each problem set will appear on the heading of the problem set.

Exams. The final exam will count for 1/3 of the course grade. It will be a take-home exam, distributed on the last day of class. ***There will be no make-up exams***.

Topics and Readings

1. Multivariate Linear Regression

    a. Estimation: Mechanics, Ch. 3
    b. Estimation: Statistical properties, Ch. 4
    c. Prediction, Ch. 5.6

2. Multivariate Linear Regression (cont.)

    a. Inference, Ch. 5.1-5.5
    b. Large-sample inference, Chs. 5.6

3. Specification Issues

    a. Dummy Variables, Ch. 6.2
    b. Non-linearity, Ch. 6.3
    c. Structural Breaks, Ch. 6.4
    d. Omitted Variable Bias, Ch. 4.3.2
    e. Collinearity, Ch. 4.7.1

4. Non-Spherical Disturbances and Generalized Least Squares

    a. Non-Spherical Disturbances and OLS, Ch. 9.2
    b. Generalized Least Squares, Ch. 9.3
    c. Heteroskedasticity, Ch. 9.4-9.6

5. Models for Panel Data

    a. Models, Ch. 11.1-11.2
    b. Estimators, Ch. 11.3-11.6, 11.1
    c. Moulton (1990)
    d. Bertrand, et al. (2004)
    e. Solon et al (2013)
    f. Abadie, et al. (2017)

6. Instrumental Variables, Ch. 8
    a. Hausman (1978)
    b. Bound, et al. (1995)
    c. Angrist, Imbens, and Rubin (1996)

7. Binary Dependent Variables, Ch. 17