Spring 2024   John V. Pepper
Economics 7720: Econometrics II   MON 234, 924-3402
MW 830-945, MON 122   Office Hours: M 1200-100

Economics 7720 Syllabus

Economics 772 is the second-half of a year -long sequence in economic statistics and econometrics.   This sequence is designed for first year Ph.D. students in economics and, combined with either Economics 871 or 872, serves to meet the departmental Ph.D. statistics and econometrics requirement.

The prerequisites are satisfactory completion of Economics 771, and a command of matrix algebra.

Grading is based on homework assignments (20%), a midterm examination (30%) and a final examination (50%). No work will be accepted after the due date.

Texts
Required *(Available in the University Bookstore)*
Goldberger, A. (1991), A Course in Econometrics, Harvard University Press (G)
Manski, C. (2007), Identification for Prediction and Decisions, Harvard University
   Press. (M)

Recommended:
Hayashi, F. (2000), Econometrics, Princeton University Press, Princeton (H)

Supplementary Texts:
Undergraduate Texts:

Wooldridge, J.M. (2000), Introductory Econometrics: A Modern Approach, South Western
         College Publishing.

Graduate Texts:
Amemiya, T. (1985), Advanced Econometrics. Harvard University Press
Davidson R. and J. McKinnon (2004), Econometric Theory and Methods, Oxford
* Greene, W. (2008), Econometric Analysis, New York: McMillan
* Hansen, B. (2022). Econometrics. Princeton University Press.
* Wooldridge, J.M. (2010). Econometric Analysis of Cross Section and Panel Data, MIT Press.

Advanced Topics:
Hardle, W. (1990), Applied Nonparametric Regression. Cambridge Univ. Press.
Imbens, G. and D. Rubin. (2015). Causal Inference for Statistics, Social Science, and Biomedical
         Sciences: An Introduction. Cambridge University Press.
Pagan, A. and A. Ullah (1999), Nonparametric Econometrics, Cambridge University Press
Efron, B. and R. Tishirani, (1993), An Introduction to the Bootstrap. Chapman and Hall.

Tentative Course Outline   **Weeks**

0.) Some Basics/Review   0

        M, Introduction
        G, Chapters 1-4, 7-8 and 18

I.)   Introduction to Prediction and Estimation: 1-2
        Best Predictors, Introduction to Parameter Estimation,
        Nonparametric Estimation

        M, Chapter 1
        G, Chapters 1,5-6, 9-11

II.) Best Linear Predictor and the Classical Regression Model: 3-5
        Bivariate and Multivariate Models, Large and Small Sample Properties
        of the Least Squares Estimator, Hypothesis Testing

        G, Chapters 14-25
        H, Chapters 1-2

III.) Generalized Classical Regression Model   6
        GLS and FGLS, Examples: Heteroskedasticity and Autocorrelation

        G, Chapters 26-28
        H, Section 1.6

Midterm Examination: **February 26**

IV.) Method of Moments: 8-11
        Least Squares and MLE, Examples

        G, Chapters 12-13, 25, and 29
        M, Chapter 13
        H, Chapters 3 (sections 4-5), 7-8

V.) The Selection Problem and Simultaneous Equations   12-14
        Worst Case Analysis, Linear Simultaneous Equations, LATE,
        Difference-in-Difference

        M, Introduction and Chapters 2-4 and 7-9
        G, Chapters 31-34
        H, Chapter 3

VI.) Miscellaneous   (time permitting)   15
        Discontinuity; Matching; Panel Data

Final Examination: **May 2, 2-5pm**