

## Economics 508: Econometrics

**Spring 2018**  
**MW 12:20 – 1:35**  
**STH B19**

**TH 5 – 6:5**  
**EPC 207**

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**Course Description:** The course involves the economic applications of the statistical techniques of simple and multiple regression analysis. These techniques are dependent on certain assumptions which may be violated. So, part of the course involves what techniques to use if these violations occur. The course is evenly divided between the theoretical and the applied approaches to econometric analysis. The course assumes a basic knowledge of statistical analysis, e.g., hypothesis testing and interval estimation, and builds upon this knowledge.

### **Textbooks:**

Introductory Econometrics: A Modern Approach, Jefferey M. Wooldridge, 6<sup>th</sup> edition (required)

A Guide to Econometrics, Peter Kennedy, (recommended, especially if you anticipate being a professional econometrician or going for a Ph.D. in economics)

Other Useful Textbooks: As practicing economists it will be useful to begin accumulating books for your library. Some current useful texts in econometrics include:

*A Guide to Econometrics*, Kennedy  
*Econometric Time Series*, Enders  
*Introduction to Econometrics*, Stock and Watson  
*Essentials of Econometrics*, Gujarati and Porter  
*Using Econometrics: A Practical Guide*, Studenmund

For future studies in econometrics there are some new and old classics:

*Econometric Analysis*, Greene  
*Econometric Analysis*, Kmenta  
*Introduction to the Theory and Practice of Econometrics*, Judge, Hill, Griffiths, Lutkepohl, and Lee  
*Econometrics*, Maddala  
*Econometrics*, Johnston

Software: Students may wish to purchase the econometric software package Stata. It can be ordered online at <https://www.stata.com/order/new/edu/gradplans/student-pricing/>. For the class it will be useful to purchase Stata/IC (approximately \$198 for a perpetual license). The software includes extensive documentation in pdf format, including the

introductory “Getting Started with Stata” manual which will be referred to in class. *We will start using Stata right away, so students should be sure to buy their copy of Stata before the first week of classes.*

Teaching Assistant: Alexander Hoagland

**Grading:** Homework (30%)  
Project (20%)  
Midterm (25%)  
Final (25%) (not comprehensive)

**Grade Scale:** 10 point grading scale (after curving)

**Proposed Topics and Problems Assigned:**

Chapter 1: Nature of Econometrics

Chapter 2: Simple Regression Model: 2.2, 2.3, 2.5, 2.7 – 2.10; C2.2, C2.4, C2.6

Chapter 3: Multiple Regression Analysis: Estimation: 3.2, 3.4, 3.5, 3.9, 3.11, 3.13; C3.2, C3.6, C3.8

Chapter 4: Multiple Regression Analysis: Inference: 4.2, 4.4, 4.6 – 4.9; C4.6, C4.9

Chapter 5: Multiple Regression Analysis: OLS Asymptotics (Skim Over)

Chapter 6: Multiple Regression Analysis: Further Issues (Skim Over)  
6.3, 6.4, 6.6, 6.7; C6.3, C6.5, C6.9

Chapter 7: Multiple Regression Analysis: Binary Variables (Skim Over)  
7.1, 7.4, 7.7, 7.9; C7.3, C7.5, C7.10

Chapter 8: Heteroskedasticity  
8.2, 8.5 – 8.7; C8.2, C8.3, C8.6

Appendix D: Summary of Matrix Algebra  
D.3 – D.8

Appendix E: Linear Regression Model in Matrix Form  
E.1 – E.5

Chapter 10: Basic Regression Analysis with Time Series Data  
10.3 – 10.6; C10.1, C10.3, C10.9, C10.10

Chapter 11: Further Issues in Time Series OLS  
11.1 – 11.7; C11.1, C11.2, C11.4, C11.6 – C11.9

Chapter 12: Serial Correlation and Heteroskedasticity in Time Series Regression  
12.6, C12.1, C12.2, C12.10

## **Project: Choice of One**

- 1) A time series analysis updating the Mishkin study (circa 1980) of does money really matter. It evaluates the question of does anticipated or unanticipated monetary policy changes influence real GDP or the unemployment rate. It was one of the basic studies in determining the authenticity of Keynesian versus Classical economics. You will need to go on the internet, download the appropriate data, perform the necessary regressions and analyze the results comparing the results to the original study. From the BEA and FRB web sites gather quarterly real GDP and some money measure (M1, M2, MB, MZM). The money measure will have to be deflated. In addition you will need additional economic data that could be used to predict money growth. Reproduce the Mishkin analysis using data since 1982 (including lags) to the present. A paper of the problem, analysis and results is to be handed in on the day of the final. It would be useful to have Microsoft Word with Microsoft Equation.
- 2) A regression analysis updating the study by Barro and Sala – I – Martin of income convergence across states. Their study concluded that state's income per capita were converging to constant value and will at some time in the future be equal across all states. One shortcoming of their analysis was that they considered only nominal income per capita, not adjusted for inflation, and they did not consider cost of living differences across states. You will need to download the appropriate data, perform the appropriate regression, and analyze the results comparing the results to the original study. Gather state personal income and population data from the BEA web site (annual probably OK). Also, download an economic series to deflate real income. It would be helpful to locate economic time series that measures the relative cost of living differences between states. It may be OK to use state real GSP instead. This study also divided Classical and Keynesians. A paper of the problem, analysis and results is to be handed in on the day of the final. It would be useful to have Microsoft Word with Microsoft Equation.

## Other Important Topics

- 1) Exams can only be made up in the case of family, medical, or work emergencies.
- 2) Late homework will only be accepted for the three circumstances discussed in #3. Otherwise for each class day late a reduction of 25% of the grade will occur.
- 3) It is highly recommended that you show up for each class.
  - There may be extra credit questions on all exams based on extra material covered during the class.
  - There are helpful hints concerning the exams.....sometimes.
- 4) Econometrics is an analytical field of study. Each day's material is part of a building block. Regular attendance is crucial. For example, some believe they can pass the course just by showing up for the tests and the final. This is so not true.
- 5) Do not hesitate to e-mail me or call me at work to answer questions or to notify me of an absence on the day of the exam.
- 6) University policy calls for severe sanctions for cheating or any other form of academic dishonesty. This policy will be enforced for all tests and quizzes in the course. Working together on homework assignments is encouraged.
- 7) Students with disabilities will be accommodated. Please see me if you need specific resources for this class.

- 8) Actively participate. Being engaged with the learning process will make your experience more pleasant and will result in better grades. Try to control the “entertainment” wants that we all have. Sometimes the birth of an economic concept can be slow so exercise patience with the process. If you do have trouble focusing, please refrain from engaging your fellow students in conversation. This is most unfair to those who are focused and are trying to learn. If you are believed to be causing a disruption to the class, then you will be subject to an after-class conversation and may not be given the benefit of the doubt if your grade is “borderline”.