**Class hours:** Thursdays 6:00pm-8:45pm, Jan. 27-May 5 (no class March 17: Spring Break)

**Instructor:** Eric Emch

**Email:** eemch1@jhu.edu

**Purpose:** To deepen students’ understanding of basic econometric theory and applications, and to expand their knowledge to include more advanced theory and techniques designed to overcome problems frequently encountered in applied microeconometric work. Specific topics to be covered, after a review of the basic OLS approach and assumptions, include: instrumental variables, estimating systems of equations, panel data models, maximum likelihood and generalized method of moments estimation, and discrete response models.

**Grading:** Your grade will be determined by your performance on 4 homework assignments (7.5% each), a mid-term examination (25%), a final exam (35%), and class participation (10%). The final will be cumulative but will focus more heavily on the material covered in the second half of the class. Homework assignments can be completed in groups of up to three. They will generally involve using econometric software, requiring the use of Stata (data will sometimes be provided in the form of Stata datasets).

**Textbooks:**

**Questions:** I am happy to answer questions via email or telephone, informally during class breaks, or by appointment. I may also hold periodic “office hours” in a location to be determined, depending on demand.

**Computing Requirements:** Homework assignments require the use of Stata to perform applied econometric analysis. In addition, during class sessions, I will often illustrate theoretical concepts using Stata commands and output. Stata is available for use in the JHU computer lab, and can be purchased for home use at a student discount price: See [http://www.stata.com/order/new/edu/gradplans/gp-direct.html](http://www.stata.com/order/new/edu/gradplans/gp-direct.html).

**University Ethics Statement:** The strength of Johns Hopkins University depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, re-use of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor. You may consult the associate dean of students and/or the chairman of the Ethics Board beforehand.
Course Outline and Reading Schedule:

Jan 27:   
*Topics:* Intro to Course, Linear Algebra Review, Review of Basic OLS, Failure of OLS Assumptions, Stata Intro  
*Readings:* Chapter 4, Wooldridge; Chapter 2, Verbeek

Feb. 3:   
*Topics:* Instrumental Variables  
*Readings:* Chapter 5, Wooldridge  
**HW #1 ASSIGNED**

Feb. 10:   
*Topics:* Specifications Tests  
*Readings:* Chapter 6, Wooldridge  
**HW #1 DUE**

Feb. 17:   
*Topics:* Systems of Equations, Seemingly Unrelated Regressions, Generalized Least Squares  
*Readings:* Chapter 7, Wooldridge

Feb. 24:   
*Topics:* Basic Linear Unobserved Effects Panel Data Models  
*Readings:* Chapter 10, Wooldridge  
**HW #2 ASSIGNED**

Mar. 3:   
*Topics:* Basic Linear Unobserved Effects Panel Data Models (cont.), Review for Midterm  
*Readings:* Chapter 10, Wooldridge  
**HW #2 DUE**

Mar. 10:   
**MIDTERM**

Mar. 17:   
**NO CLASS, SPRING BREAK**

Mar. 24:   
*Topics:* Maximum Likelihood Estimation, Generalized Method of Moments  
*Readings:* Chapter 12-14, Wooldridge; pp. 159-181, Verbeek  
**HW #3 ASSIGNED**

Mar. 31:   
*Topics:* Discrete Response Models, Basic Logit and Probit  
*Readings:* Chapter 15, Wooldridge; pp. 200-212 Verbeek  
**HW #3 DUE**

Apr. 7:   
*Topics:* Multinomial Logit, Nested Logit  
*Readings:* Chapter 16, Wooldridge; Section 7.2-7.3 Verbeek

Apr. 14:   
*Topics:* Tobit  
*Readings:* Chapter 17, Wooldridge; Section 7.4 Verbeek  
**HW #4 ASSIGNED**

Apr. 21:   
*Topics:* Sample Selection Issues  
*Readings:* Chapter 19, Wooldridge  
**HW #4 DUE**

Apr. 28:   
*Topics:* Summary/Overview, Review for Final
May 5:       FINAL EXAM