ECO 2408
ECONOMETRICS FOR M. A. STUDENTS

University of Toronto
Department of Economics
Fall, 2009

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COURSE DESCRIPTION

This is an introductory graduate level course in econometrics intended for students in the MA program. The main purpose is to provide a solid grounding in the practice of econometrics. This entails a balance of theoretical preparation and "hands on" experience working with data. The lectures emphasize econometric theory, but students have considerable opportunity to put it to use in computer-based assignments, including a term paper.

The course assumes basic familiarity with elementary statistics, matrix algebra, and some previous exposure to regression analysis; however, we begin from "square one" with simple regression analysis. By the end of the course, students can expect that they will be able to conduct their own empirical investigations, as well as to evaluate critically econometric and other statistical evidence.

TEXTBOOK

The main textbook for this course is:

Introductory Econometrics: A Modern Approach (Third Edition), by Jeffrey M. Wooldridge (Southwestern, 2006).

As a supplementary text, I recommend:

Econometric Theory and Methods, by Russell Davidson and James G. MacKinnon, (OUP Press, 2004)

Both are available at the Textbook Store, or can be purchased from various online bookstores.

The Wooldridge book is very sophisticated but written at a level that can be appreciated by undergraduates. It has a wonderful collection of computer assignments and will be the only book you need for this course. However, I will supplement the book in my lectures and I will use much more matrix algebra.

The Davidson and MacKinnon book emphasizes theoretical econometrics, but at a level that MA students can handle. Some of the exercises are real brain teasers. It's a great place to learn the foundations of econometrics.

SOFTWARE

As the course involves a considerable amount of computing, students will have to learn and use a statistical software package. You are free to use whatever package you wish (such as SHAZAM or TSP). However, the only package that will be supported *by the TA* is STATA. STATA is installed on the network of computers in the basement of Sidney Smith, and in the MFE lab at Robarts. However, I *strongly* recommend that students purchase their own copy of STATA for use on their own computers. STATA can be purchased (in a variety of flavours-- **STATA/IC 10** is the current recommended edition, and you can decide if you want the one-year or "perpetual" license) at the Software Licensing Office, in the Information Commons of Robarts library. See http://www.utoronto.ca/ic/software/detail/stata.html

EVALUATION

The final grade will be based on 4 problem sets, a mid-term exam, a final exam, and a term paper, with the following weights:

Task	Weight	Due Date
Problem Sets	10%	Problem Set 1, October 6, 2009 Problem Set 2, October 13, 2009 Problem Set 3, November 24, 2009 Problem Set 4, December 8, 2009
Mid-Term Exam	25%	Thursday, November 5, 2009
Final Exam	35%	Exam Period
Term Paper	30%	Due: December 17, 2009

The problem sets will involve both theoretical and empirical exercises. Their primary value is to serve as a learning (rather than evaluation) tool, and to help you prepare for the tests and term papers. They will be (coarsely) graded, but are only worth 2.5% each. You are encouraged to collaborate with your classmates, but each student must hand in her own copy of the problem set, indicating which other students (if any) made a considerable contribution to her answers. Problem sets are due at the beginning of the lecture. Late problem sets will not be graded (i.e., will receive a grade of zero).

The term paper requirements will be described in more detail early in the semester. It will entail an empirical investigation of an economic question. The paper will involve "original" empirical work, as well as a critical reading of a few pertinent articles related to the question. It must be no longer than 15 pages (double spaced) in length. I will provide a list of candidate topics, but students are free to select their own topic, subject to my approval, and the paper structure must conform to the project requirements (to be defined later). An outline (statement of topic) will be required by October 27. I will award a 5 percent bonus for papers handed in on or before 5:00 pm, Monday, December 14. On the other hand, papers handed in after 5:00 pm, Monday, December 21 but before 5:00 pm on Monday, Jan 11 will receive a 50 % penalty. Papers will not be accepted after this final deadline.

Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

MEETINGS

Typically, we'll have three hours of lectures every week: Tuesdays 2:00-4:00 pm and Thursday 2:00-3:00. Tutorials will usually be held on Thursday from 3:00-4:00. There will be a few exceptions (Tuesday 29th September will be a 2 hour tutorial and Thursday 1st October will be a lecture). For the first week, we will have four hours of classes without a tutorial. Also, if we fall behind the lecture schedule, I may cancel the tutorial and use it to make up lecture time. All meetings are in WW126.

The tutorials will be led by a TA (and occasionally, by me). For STATA questions, the TA is Sacha Kapoor, The main TA for this course is Nathan Yang. They will review problem sets, and he will also be available for consultation regarding the computer assignments and term papers. TA office hours will be posted on our web site.

My office hours are listed above. They may change to accommodate conflicts or due to other obligations that I have. Announcements will made through our course web-page available on my website.

EMAIL POLICY

I usually reply to email within one day. But I will not respond to questions already covered in the syllabus or other handout, or to email sent within 24 hours of your test or exam. If your question requires me to write equations or scan computer output, then you should see me during my office hours. To avoid having your email trapped by my spam filter, I encourage you to send me email from your UTOR account. Use the class identifier and a brief description on the subject line [eg, 2408: HAC reference]. There are limits to how much time I can spend answering email, so don't abuse this privilege. Email should NOT be seen as a means to receive private tutorials or review material that was covered in class but you missed. Also, the TA is under no obligation to respond to your email, so please keep your STATA questions for the tutorials.

PLANNED COVERAGE

The following is a list of the topics and corresponding readings, and anticipated duration of coverage. The core material is the regression analysis covered in the first 5 to 6 weeks. We then turn to a variety of important estimation issues that arise when the standard assumptions underlying OLS are violated.

1. The Nature of Econometrics and Econometric Data (0.5 weeks).

W: Chapter 1, "The Nature of Econometrics and Econometric Data"

2. Least Squares and Regression Analysis in the Classical Linear Normal Model

A. The simple regression model (in matrix notation) (1.0 weeks)

W: Chapter 2, "The Simple Regression Model"
: Appendix D "Summary of Matrix Algebra";
: Appendix E "The Linear Regression Model in Matrix Form"

B. Multiple Regression (3.0 weeks)

W: Chapter 3, "Estimation"
DM: Chapter 2,
DM: Chapter 3.1-3.5

W: Chapter 4, "Inference"
DM: Chapter 4.1-4.4
W: Chapter 5, "OLS Asymptotics"
DM: Chapter 3.2, 4.5

3. Extensions for cross-sectional data (4.0 weeks)

W: Chapter 6, "Further Issues"
DM: Chapter 3.6
W: Chapter 7, "Dummy Variables"
W: Chapter 8, "Heteroskedasticity"
DM: 7.1-7.5

4. Time Series Topics (2.0 weeks)

W: Chapter 10 "Basic Regression Analysis with TS Data"
W: Chapter 11 "Further Issues in Using OLS with TS Data"
DM: Chapter 13
W: Chapter 12 "Serial Correlation and Heteroskedasticity in TS data"
DM: Chapter 14

5. Endogeneity and Simultaneity. (2.0 weeks)

W: Chapter 15 "Instrumental Variables Estimation and 2SLS"
DM: 8.1-8.7
W: Chapter 16 "Simultaneous Equations Models"
DM: 12.4