

ECONOMETRICS FOR M.A. STUDENTS (ECO 2408)

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Class meetings: Tuesdays and Thursdays, 10:00-12:00.

Location: BA Room B026

Office hours: Tuesdays and Thursdays 2:00-4:00pm

COURSE DESCRIPTION

This is an introductory graduate level course in econometrics. 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 will tend to emphasize econometric theory, but students will have considerable opportunity to put this to use in computer-based assignments, as well as in a term paper.

The course assumes basic familiarity with elementary statistics, matrix algebra, and some previous experience with 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 (Fourth Edition)*, by Jeffrey M. Wooldridge (South-Western, 2009).
- As a supplementary text, I recommend: *Econometric Theory and Methods*, by Russell Davidson and James G. MacKinnon, (OUP Press, 2004)

Both textbooks 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 the lectures and I will use more matrix algebra. Davidson and MacKinnon’s book emphasizes theoretical econometrics, but at a level that MA students can handle. 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. However, the only package that will be supported *by the TA* is STATA. STATA is installed on the network of computers in the Department of Economics, 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. There are several web pages with useful introductions to the practice of econometrics with STATA. Some examples are:

<http://fmwww.bc.edu/GStat/docs/StataIntro.pdf>

<http://library.syr.edu/information/mgi/nds/software/stata/intro/index.html>

<http://www.princeton.edu/~erp/stata/main.html>

<http://www.ats.ucla.edu/stat/stata/sk/>

EVALUATION

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

Task	Weight	Due Date
Problem Sets	10%	Problem Set #1, January 20 th , 2009 Problem Set #2, February 3 rd , 2009 Problem Set #3, March 17 th , 2009 Problem Set #4, March 31 st , 2009
Mid-Term Test	30%	Tuesday, February 24 th , 2009 (in class)
Final Test	30%	Thursday, April 9 th , 2009 (in class)
Term Paper	30%	Due on Friday, April 17 th , 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 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 and in a separate outline. 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). **A *research proposal* (statement of topic) will be required by Thursday, February 12th.** The deadline to submit the complete term paper is 5:00pm on Friday, April 17th. Papers will not be accepted after this final deadline (i.e., they will get a zero grade).

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.

CLASS MEETINGS

We will have four hours of lectures every week: Tuesdays and Thursdays, 10:00-12:00. Some weeks (i.e., the weeks in which a problem set is due), the last 45 minutes of Thursday's class will be a Tutorial dealing with the last problem set. These tutorials will be led by the TA. The TA will also be available for consultation regarding the computer assignments and term papers.

TEACHING ASSISTANT

The TA for this course is **Zhongfang He** zhongfang.he@utoronto.ca.

OFFICE HOURS

My office hours are Tuesdays and Thursdays 2:00-4:00pm. They may change to accommodate conflicts or due to other obligations that I have.

EMAIL POLICY

Email should NOT be seen as a means to receive private tutorials or review material that was covered in class but you missed. I will not respond by email to questions already covered in the syllabus or other handout, or to email sent within 24 hours of your test or exam. Also, the TA is under no obligation to respond to your email, so please keep your STATA questions for the tutorials.

CONTENT OF THE COURSE

The following is a list of the topics and corresponding readings, and anticipated duration of coverage (W: Wooldridge's textbook; DM: Davidson and MacKinnon's textbook).

1. THE NATURE OF ECONOMETRICS AND ECONOMETRIC DATA

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

2. LEAST SQUARES AND REGRESSION ANALYSIS IN THE CLASSICAL LINEAR NORMAL MODEL

W: Chapter 2, "The Simple Regression Model"

W: Appendix D "Summary of Matrix Algebra";

W: Appendix E "The Linear Regression Model in Matrix Form"

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

W: Chapter 6, "Further Issues"

DM: Chapter 3.6

W: Chapter 7, "Dummy Variables"

W: Chapter 8, "Heteroskedasticity"

DM: 7.1-7.5

W: Chapter 9, "More on Specification and Data Problems"

4. TIME SERIES TOPICS

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. PANEL DATA METHODS

W: Chapter 13 "Pooling Cross Sections across Time: Simple Panel Data Methods"

W: Chapter 14 "Advanced Panel Data Methods"

6. ENDOGENEITY AND SIMULTANEITY

W: Chapter 15 “Instrumental Variables Estimation and 2SLS”

DM: 8.1-8.7

W: Chapter 16 “Simultaneous Equations Models”

DM: 12.4

SUMMARY OF USEFUL DATES

Week	Tuesday	Thursday	Important Dates
1	January 6 th : No Class	January 8 th : Chapter 1	
2	January 13 th : Chapter 2	January 15 th : Chapter 3	
3	January 20 th : Chapters 3/4	January 22 nd : Chapter 4	Problem Set #1 due on Jan. 20 th
4	January 27 th : Chapter 5	January 29 th : Chapter 6	
5	February 3 rd : Chapter 7	February 5 th : Chapter 8	Problem Set #2 due on Feb. 3 rd
6	February 10 th : Chapter 8/9	February 12 th : Chapter 9	Proposal of Term Paper due on Feb. 12 th
7	February 17 th : No Class Spring Break	February 19 th : No Class Spring Break	
8	February 24 th MIDTERM TEST	February 26 ^h : Chapter 10	Midterm Test
9	March 3 rd : Chapter 10	March 5 th : Chapter 11	
10	March 10 th : Chapter 11	March 12 th : Chapter 12	
11	March 17 th : Chapter 12	March 19 th : Chapter 13	Problem Set #3 due on Mar. 17 th
12	March 24 th : Chapter 13	March 26 th : Chapter 14	
13	March 31 st : Chapter 14	April 2 nd : Chapter 15	Problem Set #4 due on Mar. 31 st
14	April 7 th : Chapter 15	April 9 th FINAL TEST	Final Test
15			Deadline for submission of Term Paper: Friday, April 17 th .