UNIVERSITY OF GUELPH
College of Management and Economics
Department of Economics and Finance

Economics 6160 - Econometrics II   **Winter 2012**
Instructor: Dr. Alex Maynard. MacK 741, Ext. 53014
Class time/location: TBA
Office Hours: After class until there are no more questions.
Email: **maynarda@uoguelph.ca**

web:http://www.amaynard.ca/teaching/6160/6160.html

Important Notice from the Department

It is your responsibility as a student to be aware of and to abide by the University's policies regarding academic misconduct, e-mail communication, maintaining copies of out-of class assignments, what to do when you cannot meet a course requirement and the drop date for this semester. To better understand these policies, visit:

http://www.economics.uoguelph.ca/student-responsibilities-policies.asp

The electronic recording of classes is expressly forbidden without the prior consent of the instructor. This prohibition extends to all components of the course, including, but not limited to lectures, seminars, and lab instruction, whether conducted by the instructor or a seminar leader or demonstrator, or other designated person. When recordings are permitted they are solely for the use of the authorized student and may note be reproduced, or transmitted to others, without the express written consent of the instructor.

Course Objective

This is designed as a second semester econometrics course for students in the Ph.D. course and an optional course for ambitious MA students. The focus of the course is on econometric methodology. Rather than cover an exhaustive list of methods, the goal of the course is to strengthen your understanding of core principles in econometrics by going through a number of important methods in depth. This should help you develop the ability to learn and understand new econometric techniques on your own as an independent researcher. A secondary goal is the development of statistical programming skills so that you can implement new methods, without the need to depend exclusively on pre-canned procedures.

Readings and Textbooks

The required textbook is:

Lee, Myoung-jae (1996). Method of Moments and Semiparametric Econometrics for Limited Dependent Variable Models. Springer-Verlag, New York.

Unfortunately, the book is currently out of print. A copy will be made available at the Economics

library and a second copy will be held on reserve at the main Guelph library. You are not expected to purchase textbooks other than the required textbook. However, the following textbooks may be very useful to you. I have submitted a request for them to be held on reserve at the library.

Davidson, R. and J.G. MacKinnon (04), Econometric Theory and Methods, (Oxford University Press).

Davidson, R. and J.G. MacKinnon (93), Estimation and Inference in Econometrics (Oxford University Press).

Greene, W.H. Econometric Analysis, Prentice Hall.

Davidson, J. (00), Econometric Theory, Blackwell Publishers.

Enders, W. (2004). Applied Econometric Time Series (2nd Edition). Wiley Series in Probability and Statistics.

Brockwell, P.J. and R.A. Davis (1996). Introduction to Time Series and Forecasting, Springer, New York.

Wooldridge, Jeffrey M., Introductory Econometrics: A Modern Approach, Edition 3, Thomson Learning, 2006.

Throughout the term you may also be assigned journal articles and working papers to read.

Software

You may choose between one of three statistical software packages: GAUSS, MATLAB, or R, which will be available in the computer lab in Day Hall Room 101. R can also be freely downloaded from http://www.r-project.org/. The appendix to your textbook contains example programs in Gauss for a selection of the estimators in your textbook. For the written component of your project you are expected to use either Lyx, latex, or Scientific workplace although tables and figures may be written in other software and included at the end of the paper. Assignments should be turned in PDF format only. Additional information on software, programming, and data can be found at: http://www.amaynard.org/computing/computing.html.

Assignments, Exams, and Marks

Your mark will be assigned according to the following weights:

1. <u>Econometric Programming Project</u> (25%,). This project can be completed in groups of up to two students (or three with permission of the instructor), following the instructions under group work below. However, except with explicit permission of the instructor, you may not write both the project and paper with the same students. Several programming assignments will be given during the term to get you started on the programming project. You will be expected to turn these assignments in separately according to the schedule given below and also to incorporate them into your project. At a minimum, your programming project should include a well written up, well explained set of solutions to these assignments in the form of a paper. Preferably, the project will include one or more

additional topic of the students' own interest. The project should aim to (a) explain clearly both the theoretical properties (including derivations) of the procedure and the steps needed to program it, write a program for the procedure in GAUSS, MATLAB or R (without copying, downloading, or using pre-canned procedures), run small sample simulations to explore the finite sample properties of the procedure. All your code should be included as an appendix to your paper and snippets of relevant code should also be included in the text to explain your procedures. It is equally important to include clear equations and written descriptions of both the model that you simulate your data from and the estimators that you apply. Students are free to develop the project themselves following their own interests, so long as it falls within these general guidelines.

Due Dates for Assignments and Programming Project:

- Assignment 1: Due Friday of the second week of classes
- Assignment 2: Due Friday of the third week of classes
- Assignment 3: Due Friday of the fourth week of classes
- Assignment 4: Due Friday of the fifth week of classes
- Assignment 5: Due Friday of the sixth week of classes
- Final Programming Project: Due Friday of the eighth week of classes

2. Empirical Research Paper (25%). This paper may be written individually or in groups of two (or three with permission of the instructor). However, except with explicit permission of the instructor, you may not write both the project and paper with the same students. The paper should be written as an academic research paper. The topic is the student's choice. However, it must make include some empirical work and it must make an original contribution to the literature in some respect. The econometric methods should be appropriate to the question and data at hand. They can be simple or fancy depending on what makes sense in the context of your paper, but should not be fancy simply for the sake of being fancy. It may often be important to include appropriate specification tests and robustness results. It also important to explain how your contribution fits into the rest of the literature. Thus you require a good literature review. Finally, be sure to include a clear discussion of your empirical results and their economic implications.

A day outside of regular class time will be set aside during the second to last week of class for each student to present their paper. All students are expected to attend each other's presentations and to actively participate by asking questions or providing comments.

Due Dates for the Empirical Paper:

Proposal: Due by Tuesday of the third week of class. Please present and discuss this with me in person during office hours, so as to get quick feedback. Your proposal should explain what you want to do, how it fits into the literature, and how you will find the data to do it. The main purpose is to make sure that your plan is feasible given the time constraint.

Rough draft and Preliminary Empirical Results: Due the Tuesday after reading week. Please present and discuss this with me in person during office hours, so as to get quick

feedback.

Presentation: Second to last week of class. Prepare about 12 slides for your presentation.

Final paper: Due one week before grades are due to avoid penalties. Three bonus marks will be accorded to any paper turned in by the Monday following the last day of class.

3. Midterm exam (20%). Old midterm exams are posted on the course web page (under exams). It strongly suggested that you attempt all of the problems on the old midterms as practice for the exam.

4. Final Exam (25%). Old final exams are posted on the course web page (under exams). It strongly suggested that you attempt all of the problems on the old midterms as practice for the exam.

5. Class Participation (5%). This should be self-explanatory.

Suggested homework assignments may also be given out from time to time. These homework assignments will only be graded if you are on the margin between two grades, in which case a good track record on the homework may bring you up to a higher grade.

Group Work

Students may work in groups not exceeding three (groups of 2 are recommended, working alone is not recommended) and turn in one common assignment will all names attached. Students are free to form their own groups. In the unusual event of irreconcilable differences, subject to my approval, students may be permitted to terminate their group and continue the project separately. In such a case, any work done up until that point should be provided to all former group members. Each member of each group will also be asked for a confidential and honest assessment of the contributions of the other group members. It is expected that different groups will work on substantially different topics and that there will be no collaboration between groups.

Replication Files

For both your project and your paper you are required to hand in your data and programs, together with a brief readme file that explains how I can easily reproduce your results. You may also be asked to demonstrate and explain the replication in person.

Class Email List

Instructions for joining the class email list will be posted on-line at: http://www.amaynard.ca/teaching/6160/announce.html. You are responsible for joining this list and for checking either your e-mail or the above mentioned web page regularly for any announcements.

Office Hours

I will answer some quick, short questions by e-mail, but most questions in a class of this type are

best discussed in person. I encourage you to come by frequently to my office hours to ask me for help or clarifications if you have questions.

Your Feedback

Your feedback and suggestions on the course would be most greatly appreciated. Please feel encouraged to give me your feedback in person, by e-mail or by sending me an anonymous email using the feedback box at http://www.amaynard.org/teaching/anonymous_reply.html.

Plagiarism

Students are reminded that, although plagiarism may sometimes seem temptingly easy in the age of the internet, it is nonetheless a very serious academic offence to make use of other's work without clear and appropriate acknowledgement. Students may be required to submit their written work in electronic form and have it checked for plagiarism using plagiarism detection services, such as http://www.turnitin.com. Instructions for turning in written work will be posted on-line at the following URL: http://www.amaynard.ca/teaching/6160/turnitin.html.

Topics Covered

Below is a preliminary list of topics covered. These may be updated as the course progresses. I will set the pace according to the comfort level of the class and may cover either more or less than what is listed below. Related readings are given in parenthesis next to each topic.

1. Intrumental variables (IV) and systems of simultaneous equations
2. General method of moments (GMM)
3. Large sample theory with application to IV and GMM estimators
4. Large sample hypothesis tests
5. Hausman tests
6. Robust covariance estimation (HAC)
7. Extremum estimators
8. Introduction to panel data

Note:

You will be asked to complete an evaluation of this course at some time during the last two weeks of the semester. The Department of Economics policy regarding the conduct and use of these evaluations will be found at:

http://www.economics.uoguelph.ca/course-evaluation.asp