



Department of Economics and Finance

**ECON*6160
Econometrics II
Winter 2016**



Instructor: Dr. Alex Maynard. MacK 741, Ext. 53014
Class time/location M, W 1:00PM-2:20PM in MCKN 034A
Office Hours: M.W by appointment
Email: **maynarda_AT_uoguelph_DOT_ca**

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

Important Notices

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:

https://dev.web.uoguelph.ca/economics_d7/important-notice-about-students-responsibilities-and-university-policies

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 not be reproduced, or transmitted to others, without the express written consent of the instructor.

Both your physical and mental presence are requested during lecture. To encourage active participation and minimize distractions, you are requested to turn off and put away all electronic equipment during lecture.

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 (2009). *Micro-Econometrics: Methods of Moments and Limited Dependent Variables* Springer-Verlag, New York.

This is a follow up to his earlier book entitled:

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

Although many of the lecture notes were based on the earlier 1996 version of the book, that book is now out of print. 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. Matlab has a student version available for purchase at a discounted price, GAUSS may be available in the computer lab in Day Hall Room 101, depending on the current state of the lab. R can 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. Final versions of 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. Econometric Programming Project (40%,). 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. 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.

Anticipated Due Dates for Assignments and Programming Project:

- Assignment 1: Due Tuesday of the second week of classes
 - Assignment 2: Due Thursday of the third week of classes
 - Assignment 3: Due Thursday of the fourth week of classes
 - Assignment 4: Due Thursday of the fifth week of classes
 - Assignment 5: Due Thursday of the sixth week of classes
 - Final Programming Project: Due Thursday of the eighth week of classes
2. Midterm (25%) 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.
 3. Final exam (30%). 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 and finals as practice for the exam.
 4. Class Participation (5%). This should be self-explanatory.
 5. Optional Problem Assignments (0%). In order to help prepare you for the exam, recommended problems from past exams will be assigned from time to time. In the event that your course mark falls just short of a higher letter grade, your performance assignments will be taken into consideration when deciding or not to round your grade up to the higher letter mark.

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 on the programming project in groups of 2 not exceeding three (or 3 with permission of the instructor in special circumstances) and turn in one common assignment with both names attached. Working alone is permitted but not recommended. 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 there will be no collaboration between groups.

Replication Files

For both your project 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.

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>.

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/2015-2016/>

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: <http://www.csd.uoguelph.ca/csd/>

Course Evaluation Information

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

<https://www.uoguelph.ca/economics/course-evaluation>

Drop date

The last date to drop one-semester courses, without academic penalty, is **Friday, March 11 2016**. For regulations and procedures for Dropping Courses, see the Academic Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/2015-2016/>

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. Instrumental 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 Stationary Time Series Econometrics
9. Introduction to Nonstationary Time Series Econometrics