
ECO 376H
Applied Econometrics II

University of Toronto
Department of Economics

Winter, 2009

Course Description

This is the second course in the applied econometrics sequence, building on ECO 375H. As with that course, the primary objective is to provide students with a solid theoretical and practical foundation for the interpretation of empirical evidence in economics. As such, there is a dual focus on econometric theory and “hands-on” experience working with economic data. The course builds on the multiple regression model introduced in ECO 375, moving to a variety of advanced topics. In particular, we relax several of the key Gauss-Markov assumptions, and explore strategies that economists use to obtain consistent estimates of causal relationships. Statistical assumptions, theory, and results are carefully developed, as are the necessary conditions for the valid application of regression analysis to economic data. The centrepiece of the course is an empirical term paper due at the end of the semester. At the end of the course, students should be able to conduct their own empirical investigations, and critically evaluate econometric and other statistical evidence.

Instructor

Instructor: Professor Dwayne Benjamin
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TA: Sacha Kapoor (sacha.kapoor@utoronto.ca)

Prerequisites

Students must have the following prerequisite, as listed in the Calendar, to take this course:

Econometrics: ECO 375 (with *at least* 60%), or ECO 374 (with *at least* 70%).

The Department of Economics takes prerequisites very seriously. They are checked, and students will be removed from the course list if prerequisites are not met (no exceptions).

Textbook

Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach*, Fourth Edition, 2009, South-Western / Cengage Learning.

This is available at the Textbook Store, or can be purchased from various online bookstores. All references in this course will be to the fourth edition. (This is the same textbook as used in ECO 375.)

Software

The course involves a considerable amount of computing, and students must learn and use a sophisticated statistical software package. STATA is highly recommended, and is the *only* package that will be supported by the instructor and TA's.

Students should purchase **Intercooled Stata 10.0**, available online at:
<http://www.stata.com/order/new/edu/gradplans/cgpcampus-order.html>

While orders are placed online, you will pick up your software at the Software Licensing Office in the Information Commons at Robarts Library:
<http://www.utoronto.ca/ic/software/detail/stata.html>

While it is *NOT supported in any way* by the instructor or TA's, students interested in a more cumbersome, but otherwise excellent low-cost (i.e., "free") alternative to STATA may consider "gretl":
<http://gretl.sourceforge.net/>

Website

The course website (on Blackboard) is accessible through:

<http://www.economics.utoronto.ca/benjamin/eco376S-09.htm>

The website is an important means by which I make announcements to the class, as well as distributing problem sets, the accompanying data, outlines of the lectures, etc. We will be using Blackboard to manage the course website and class communications. It is important that you regularly check the announcements posted there.

Email Policy

The course works best when there is interaction between faculty and students. To this end, I have scheduled two hours per week of office hours. In addition, the TA will be available for two hours per week. Combined, students thus have four hours per week for one-on-one discussion with me or the TA concerning course materials.

Where does email fit in? My experience is that email is **not** the appropriate forum for discussing details of econometrics or interpretation of regression output – that is why we have set aside office hours. That said, email can be helpful on occasion, and within limits.

Accordingly, I will endeavour to reply to email within 24 hours, except on weekends, with the following provisions:

- The question should require a one (or two) sentence response (maximum). If it takes more, office hours are the more appropriate venue;
- I will never answer questions concerning STATA (or computing more generally). Such questions should be directed towards the STATA TA;
- I will never answer emails that request information that can be found on the website or the syllabus;
- I will not reply to emails concerning grading. For such matters, office hours are more appropriate.
- It is also (strongly) preferable that you use a “utoronto” email address: My spam filter is set to maximum. Moreover, university policy stipulates a preference for these email addresses.
- Always identify yourself in your email;
- Please do not send attachments of any kind;
- Please do not submit term work by email;

I should note, however, that I encourage you to provide course feedback and comments via email, if you wish.

I should also add that the TA has allocated time each week to respond to emails.

Evaluation

The final grade is based on the following:

Task	Weight	Due Date
Term Paper Proposal	5%	Thursday, February 5 th , 2009
Mid-Term Exam	20%	Friday, February 27 th , 2009
Term Paper	40%	Thursday, April 9 th , 2009
Final Exam	35%	Final Exam Period (April/May)

Mid-Term Exam: will be held on Friday February 27th, during tutorial time (1:00-2:00), at a location to be announced later.

- Questions will be short-answer or multiple-choice;
- A grade of zero will be given to students who do not write the test, unless an **appropriate and convincing** note is received within one week of the missed test (explaining why the test was missed).
 - The note must be provided using the University of Toronto medical certificate;
 - Only original notes will be accepted. I will not accept photocopies or emailed certificates.
 - The note must clearly state that on the date of the test, the student was too sick to write the test. Illness before the test is not sufficient grounds for missing the test. Nor will I accept notes that indicate that the student would have performed “sub-optimally.”
 - To comply with these requirements, it is expected that the student will have met with the doctor on the date of the test.
 - I will review each sick note to determine whether there are sufficient grounds for a student to be excused from a test. Part of this review process may include meeting with the student, and/or following up with the physician.
 - It is an academic offence to feign illness to avoid a test.
- If a student has been excused from the mid-term exam on medical grounds, he or she will be permitted to write the make-up test. The make-up test will be held on **Friday, March 6th**. The test will also be 1 hour, and will have a short answer or multiple-choice framework. It may not be the same format as the mid-term test itself.

- **NB:** Consistent with university policy, there is no “make-up” test for the make-up test. No medical excuses will be accepted, and grade of zero will be applied if a student fails to write the make-up test.
- Note also that the make-up test may not be graded before the drop date (March 8th, 2009).
- For any test, if a student wishes to appeal a grade, he/she must provide a written explanation of why they believe their grade is mistaken, and submit it to me *within one week of the test being returned to the class*. Note that the entire test will likely be re-graded, and the appealed grade can be lower or higher than the original grade.

Term Paper: will be assigned in the first week of classes.

- It will entail an empirical investigation of a question in economics. The paper will involve “original” empirical work, as well as a critical reading of a several pertinent articles related to the question.
- It must be no longer than 15 pages in length. The paper structure must conform to the project requirements.
- I will provide a list of “fall-back” topics, but students are encouraged to select their own topic, subject to my approval.
- An outline (proposal or statement of topic) will be required by **Thursday, February 5th, 2009**. We will host extra tutorials outside of the normal time slot to provide feedback and discuss the proposals.
- I strongly encourage students to work in pairs. I can facilitate “marriages” if you need help in finding a partner. If you wish instead, you can work alone. The maximum group-size, however, is two.
- I will be very strict regarding deadlines:
 - Paper proposals handed in after 5:00pm on February 5th will be penalized by 3 percentage points (out of 5). No proposals will be accepted after 5:00pm on Thursday, February 12th (one week past the due date).
 - Papers are due **Thursday, April 9th, 2009** during the lecture time (i.e., before 5:00). Term papers will be penalized by 30 percentage points if handed in after 5:00pm April 9th (i.e., less than one week late); by 50 percentage points if handed in after 5:00 pm April 16th; and a grade of zero will be awarded if handed in after 5:00pm Thursday, April 23rd.

A note about plagiarism: Plagiarism is a very serious problem. There will be more details concerning the definition of plagiarism, advice on how to avoid it, and the associated penalties when we discuss the paper assignment in more detail. The term paper must be submitted for review through www.turnitin.com. Instructions will be provided along with the details to the assignment.

It is important to underscore that the Department of Economics prosecutes all cases of plagiarism vigorously. This includes “unintentional” plagiarism. Ignorance of the rules of plagiarism is specifically excluded as a defence.

University disclaimer concerning Turnitin.com:

“Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site”

Problem Sets: Problem sets will be assigned throughout the course, and form the basis of the tutorials. They will be comprised of both theoretical and computer- (data-) based problems. The problem sets will not be graded, but serve to prepare students for the graded components of the course (mid-term, term paper, and final exam).

Meetings

- Lectures are held every Thursday from 3:00-5:00. Even though PowerPoint outlines of the lectures are posted online, it is a terrible idea to skip lectures: The posted slides are a long way from being a transcript of the lecture. I will usually post a PDF file of the slides the day before the lecture.
- The Friday hour (1:00-2:00) should be treated as regular lecture time. It will primarily be reserved for tutorials. Tutorials are used for discussing problem sets, taking up test questions, and introducing STATA. But I also plan to use the tutorial time to discuss term work (especially the term papers), and also (possibly) as “spill-over” time for covering lecture material.

Planned Coverage

The following is a list of the topics we shall cover, with the associated readings. The projected pace is noted in parentheses, but subject to change. The basic plan is to review the consequences of a number of violations of the Gauss-Markov Theorem, and also to explore how economists establish “causality” in empirical relationships.

1. *Heteroskedasticity* (1.5 weeks)
 - Wooldridge, Chapter 8
2. *Serial Correlation* (1.5 weeks)
 - Wooldridge, Chapter 12
3. *Miscellaneous Data and Specification Issues* (1 week)
 - Wooldridge, Chapter 9
4. *Pooled Cross Sections and Panel Data* (2 weeks)
 - Wooldridge, Chapters 13 and 14
5. *Instrumental Variables* (4 weeks)
 - Wooldridge, Chapter 15 and Parts of Chapter 16
6. *Advanced Time Series Topics* (2 weeks)
 - Wooldridge, Chapter 18