ECO 375 H1F: Applied Econometrics I

Fall 2018, L0101

Department of Economics, University of Toronto

Instructor: Prof. Jonathan Beauchamp
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Office hours: Thursday 11:00am–12:00pm and 3:00pm–4:00pm, GE 306

TA1 (tutorials + grading): Hammad Shaikh
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Office hours: Tuesday 2:00pm-4:00pm, GE 040 (Sept. 11) & GE 213 (all other weeks)

TA2 (grading):   Mohammad Javad Eshtiyagh
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TA3 (grading):   William Arbour
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Lectures: Thursday 9:00am–11:00am, SS 1069
Tutorials: Friday 11:00am–13:00pm (most tutorials will end at noon), KP 108

Course Description

Econometrics combines elements of economic theory, statistics, probability theory, and mathematics. The primary objective of the course is to provide students with a solid theoretical and practical foundation for the interpretation of empirical evidence in economics. The course is built around the statistical foundations and economic application of the multiple regression model. Students will gain practical experience working with economic data using statistical software.

Previous Training

*Prerequisite*s: (i) ECO200Y1 or ECO204Y1 or ECO206Y1
                 (ii) ECO220Y1(70%) or ECO227Y1 or STA237H1(70%)+STA238H1(70%)
                     or STA257H1+STA261H1
Recommended: MAT221H1 or MAT223H1 or MAT240H1
Exclusion: ECO327Y5, ECO375H5

The prerequisites are checked by the administration of the Department of Economics and students will be removed from the course list if the prerequisites are not met.

Textbook

"Introductory Econometrics" by J. M. Wooldridge, **4th or 5th or 6th** Edition, South-Western Cengage Learning. The book can be purchased at the University of Toronto Bookstore or from various online bookstores. A copy of the book has been placed on reserve at the Robarts Library.

Course Website

The course website on **Quercus** is accessible through https://q.utoronto.ca. Lecture slides will be posted on the course website. I recommend bringing them to class, either printed or on a tablet/laptop. The

course website will also be used to distribute problem sets and the accompanying data, to manage class communications, etc.

Software
Stata IC, version 15. Earlier versions are also admissible, but they may not be supported by the instructor or TA. Students can purchase Stata at discounted prices (see http://sites.utoronto.ca/ic/software/detail/stata.html for details). Buy a six-month license of Stata IC, version 15 if you do not plan to take other courses using STATA (such as ECO475).

Evaluation
The final grade is based on the following:

Task	Weight	Due date
Midterm	40 %	October 19, 2018
Two graded problem sets	10% (5% each)	October 3, 2018 November 21, 2018
Final Exam	50 %	Final Exam Period

The **midterm** will be held on Friday October 19 from 11am to 1pm (during the tutorial time slot) in room [TBD].
- The midterm will have 90 minutes duration.
- Students who do not write the test will be given a grade of zero, unless I receive:
  (1) an email from the student to indicate that they will not be able to write the midterm, on the day of the midterm, and
  (2) an appropriate medical note explaining why the test was missed, to be provided before the scheduled make-up midterm:
  o The medical note must be provided using the UofT Verification of Illness or Injury Form or one of the other types of medical documentation deemed "official" by the Faculty of Arts and Science; no other documentation will be accepted.
  o If you submit a UofT Verification of Illness or Injury Form, it must have been completed by a recognized medical practitioner and must clearly indicate the practitioner's licensing body and number. Only original notes will be accepted. 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.
  o I will review each medical 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 medical practitioner.
  o It is an academic offence to feign illness to avoid a test.
- If a student has been excused from a test on medical grounds, he or she will be permitted to write a **make-up test** to be held on Friday October 26 from 11am to 1pm in room [TBD].
  o The make-up test will be worth the value of the midterm.
  o Consistent with university policy, there will be no "make-up" test for the make-up test. A grade of zero will be applied if the make-up test is requested but missed.
  o Note that it is unlikely that the make-up test will be graded before November 5, the last day to drop courses without penalty.
- If students wish to appeal a grade, they must provide a written explanation of why they believe their grade is mistaken, and submit it to the instructor within one week of the midterm being returned to the class.

There will be two **graded problem sets.**

- Graded problem sets must be submitted through the Quercus course website in a Portable Document Format (PDF). Students will be instructed how to generate a PDF file during a tutorial session. Neither paper submission nor email submission will be counted. Problem sets are due at 11:59pm on their due date.
- Both text and STATA log files need to be submitted.
- Late assignments will not be accepted and will receive a grade of zero, unless I receive:
  (1) an email from the student to indicate that he/she will not be able to submit the assignment on time, by 11:59pm on the assignment due date, <u>and</u>
  (2) an appropriate medical note explaining why the assignment could not be submitted on time, within the week following the assignment due date; the medical note must satisfy the same requirements as for the midterm (see above).

Additional problem sets

Additional problem sets will be distributed throughout the semester and will form the basis of the tutorials. They will consist of both theoretical and computer- (data-) based problems. The additional problems sets will not be graded, but serve to prepare students for the exams. Students are highly encouraged to complete the additional problem sets.

Academic Misconduct

Copying, plagiarizing, or other forms of academic misconduct will not be tolerated. Any student caught engaging in such activities will be subject to academic discipline ranging from a mark of zero on the assignment, test or examination to dismissal from the university as outlined in the academic handbook. Any student abetting or otherwise assisting in such misconduct will also be subject to academic penalties. As a student it is your responsibility to ensure the integrity of your work and to understand what constitutes an academic offence. If you have any concerns that you may be crossing the line, always ask your instructor. **Ignorance of the rules does not excuse cheating or plagiarism.** For more information regarding the Code of Behaviour on Academic Matters please visit http://www.governingcouncil.utoronto.ca/policies/behaveac.htm.

For accessibility accommodation see http://studentlife.utoronto.ca/accessibility.

Tentative course schedule

Session	Date		Topic	Material
1	Sept.	6	1.Syllabus 2. Overview of Econometrics 3. Statistics Review	Ch 1, App A, B, C.1, C.2, C.5, C.6
2		13	4. Simple and Multiple Regression – Estimation	Ch 2, 3
3		20	5. Matrix Algebra for Regression Analysis 6. Multiple Regression in Matrix Algebra	Appendix D.1-D.6 Appendix E.1
4		27	7. Multiple Regression – Properties 8. Multiple Regression – Inference	Appendix E.2, Ch 3 Ch 4
	Oct.	3	*Problem set 1 due*	
5		4	9. Multiple Regression – Further Issues 10. Multiple Regression – Qualitative Info.	Ch 6 Ch 7
6*		11	10. Multiple Regression – Qualitative Info. (continued) 11. Heteroskedasticity	Ch 7 Ch 8
7		18	12. Specification and Data Problems Review	Ch 9
		19	*Midterm*	
8		25	13. Instrumental Variables	Ch 15
9	Nov.	1	14. 2SLS 15. Simultaneous Equations	Ch 15 Ch 16
		5	*Last day to drop the course without penalty*	
		5-9	*Fall reading week*	
10		15	16. Endogeneity in Applications	Slides
		21	*Problem set 2 due*	
11		22	17. Time Series 18. Asymptotic Analysis	Ch 10 Ch 5, App C.3, E.4
12		29	18. Asymptotic Analysis (continued) Review	Ch 5, App C.3, E.4
	Exam period		*Final exam*	

* TA Hammad Shaikh will give the lecture in Week 6.