

**UNIVERSITY OF TORONTO**  
**ECO475H1S**  
**APPLIED ECONOMETRICS II**  
**Winter 2018**  
**Lectures: Thursday, 10:00-12:00, SS2106**  
**Tutorials: Friday, 11:00-12:00, MS2106**

**Instructor:**

Professor: Ismael Mourifié  
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Office hours: Thursday 5:30-6:30 p.m.

**TA:**

Thomas Russell  
Office: Max Gluskin House, Room 313 (TBC)  
Office hour: Friday 4:00pm-6:00pm.

**Course Website:**

The Black Board (<https://portal.utoronto.ca>)

**Course Outline:**

This is the second part of an introductory course in applied econometrics. This term, the course will focus on microeconometrics. We will study theory and application of methods of data analysis developed for microdata pertaining to individuals, households and firms. This course contains two main parts. We will study recent development of theory and methods for (1) analyzing selective samples and (2) analyzing discrete choice models.

Students also learn how to apply these techniques to economic data by using statistical software.

**Prerequisites:**

ECO375H1(70%)/ECO374H1(80%).

Prerequisites are strictly checked and enforced and must be completed **BEFORE** taking a course. It is the student's responsibility to check the prerequisites before enrolling in any course. By taking this course you acknowledge that you will be removed from the course at anytime if you do not meet all requirements set by the Department of Economics. See Faculty of Arts and Science Calendar for details. The instructor does not have any authority of waiving prerequisites.

**Useful References:**

A. C. Cameron and P.K. Trivedi, *Microeconometrics*, Cambridge University Press

A. C. Cameron and P.K. Trivedi, *Microeconometrics Using STATA*, STATA Press

J. M. Wooldridge, *Introductory Econometrics*, Fourth/Fifth Edition, South-Western Cengage Learning.

**Recommended Statistical Software:**

STATA IC 13/14/15

The course involves a considerable amount of computing, and students must learn and use a sophisticated statistical software package. STATA IC 13/14/15 is the *only* package that will be supported by the instructor and TA's. Students who have strong preference to use other software, should contact the instructor in the first week of the lecture.

Students can purchase STATA IC 15 at discounted prices. While orders are placed online, you will pick up your software at the Software Licensing Office in the Information Commons at Robarts Library. See for details. There are several different types of STATA licenses for students. Buy a six-month license of **STATA/IC 15**. DO NOT purchase Small STATA as Small STATA is not sufficient for ECO475.

**Marking Scheme:**

The final course mark is based on the following:

Term Paper Proposal	5%
Term Paper	45%
Assignment/Oral presentation	25%
Final Exam	25%

**Policies on the Term Paper Proposal and Term Paper**

- See the separate handout.

**Policies on Missed Tests:**

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).

- Make-up exams will only be scheduled based on legitimate medical reasons or acute emergencies.

- An email notice must be sent to me on the day of the exam.
- Original legitimate supporting documents of absence are required (within one week). Scanned, copied, or emailed documents will not be accepted.
- When a student missed the exam for medical reasons, he or she shall provide an original copy of a fully completed University of Toronto official "Verification of Student Illness or Injury" form. The certificate needs to be completed by a qualified medical doctor whose OHIP number must be provided. You can download the form from <http://www.illnessverification.utoronto.ca>.
- It is by the University policy that there are no “make-up exams” for “make-up exams”

### **Regrading of the Term Test:**

Students can request regrading of their term tests by explaining the reason **in a written statement**. This request must be submitted to either the Instructor or the TA within one week from the day in which the TA returns the term test to students. The whole test will be regarded to ensure consistency.

### **Policies on Late Submission:**

Term paper (graded out of 100): The size of penalty is  $7 + (\text{the number of days passed after the due date}) * 3$ . For example, the paper submitted on April 3<sup>th</sup> (i.e., two-days late) automatically loses  $13 (= 7 + 2 * 3)$  marks. In other words, it receives at most 87 out of 100. No papers will be accepted after April 15.

### **Email Policy:**

I will reply emails within 24 hours, except on weekends and holidays, 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 not reply to emails concerning grading. For such matters, office hours are more appropriate.
- It is also (strongly) preferable that you use the University of Toronto email addresses: my spam filter is set to maximum.
- Always identify yourself, course and section in your email.
- Please do not send attachments of any kind.
- Please do not submit term work by email.
- The teaching assistant has one email-hour per week to reply course related questions, and the same email policy holds for them.

## **Turnitin.com**

Normally, students will be required to submit their term papers 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. Students who object to submitting their papers through this website should contact the instructor in the first week of the lecture.

## **Academic Misconduct**

Academic integrity is a fundamental value essential to the pursuit of learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will continue to be valued and respected as a true signifier of a student's individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment (this includes working in groups on assignments that are supposed to be individual work).

On tests and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers.
- Misrepresenting your identity.
- Submitting an altered test for regarding.

Misrepresentation:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following the procedures outlined in the Code of Behaviour on Academic Matters. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact me. If you have questions about appropriate research and citation methods, you are expected to seek out additional information from me or other available campus resources like the College Writing Centers or the Academic Success Centre.

**Important Dates:**

January 19 <sup>th</sup>	Notify the Instructor if you work in a pair
January 26 <sup>th</sup>	Term Paper Proposal due
March 1 <sup>st</sup> & 8 <sup>th</sup>	Oral Presentation (in class)
March 12 <sup>th</sup>	Last date to drop the course without penalty
April 1 <sup>st</sup>	Term paper due

**Tentative Course Schedule:**

Date	Week	Topic
1/4 1/5	1	Term paper + Binary outcome models <b>Tutorial #1:</b> Introduction to STATA
1/11	2	Tobit and sample selection I
1/18 1/19	3	Tobit and sample selection II <b>Tutorial #2:</b> Tobit and Sample Selection Models in STATA
1/25	4	Binary outcome models with endogeneity I

2/1	5	Binary outcome models with endogeneity II
2/2	5	<b>Tutorial #3:</b> Nonlinear Models with Endogenous Regressors
2/8	6	Treatment Evaluation I
2/15	7	Treatment Evaluation II
2/16	7	<b>Tutorial #4:</b> Testing LATE Assumptions
2/22		Reading Week (No class)
3/1	8	Oral Presentation I
3/8	9	Oral Presentation II
3/15	10	Linear Panel I
3/22	11	Linear Panel II
3/23	11	<b>Tutorial #5:</b> Linear Panel Data Models
3/29	12	Multinomial models

### Details of the Topics and lectures notes

#### 1. Binary outcome models:

Logit and probit models, latent variable models, Marginal effect.

Cameron and Trivedi (Chap 14), Allison, P. D. (1999): Comparing Logit and Probit Coefficients Across Groups. Long, J. S. (2009): Group comparisons in logit and probit using predicted probabilities1,"

#### 2. Tobit and sample selection I & II:

Censored and truncated model, structural model (woman labor market), selection problem, Heckman model, Heckman's Two-Step Procedure, Marginal effect...

Cameron and Trivedi (Chap 16), Aguirregabiria (2009): Note on sample selection, Heckman, J. (1979): "Sample Selection Bias as a Specification Error," Gronau, R. (1974): "Wage comparisons: a selectivity bias,"

#### 3. Binary outcome models with endogeneity I:

Binary outcome models with continuous endogenous regressor (Control function approach). Arellano classes notes. Blundell, R. and J. L. Powell (2003): "Endogeneity in Nonparametric and Semiparametric Regression Models".

**4. Binary outcome models with endogeneity II:**

Binary outcome models with binary endogenous regressor, Bivariate Probit, Bivariate Probit with Partial Observability (Poirier's (1980) Model).

Heckman, J. J. (1978): Dummy endogenous variables in a simultaneous equation system,"

Sartori, A. E. (2003): An Estimator for Some Binary-Outcome Selection Models Without Exclusion Restrictions," Méango and Mourifié (2014): A note on the identification in two

probit model with dummy endogenous regressor.

**5. Treatment Evaluation I & II:**

Causal and Noncausal models, Identification concepts, potential outcome model, randomized treatment, treatment effect with selection bias, ATE, IV, LATE.

Cameron and Trivedi (Chap 2 & 25), Imbens and Angrist (1994, ECA).

Testing LATE assumptions: Mourifié and Wan (2016, Restat).

**6. Linear Panel I & II**

Overview of models and estimators, Fixed effects, Random Effects Models, Pooled models, Difference-in-differences Estimator. Cameron and Trivedi (21 & 22)

**7. Multinomial Models :**

Multinomial logit, Random utility models, Cameron and Trivedi (15).