

ECO 327Y: APPLIED ECONOMETRICS

University of Toronto @ Mississauga, 2001-2002

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Professor (2nd half): John Maheu
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Lectures: Tuesday 10-12, Room KN 127

TA/Tutorials: TBD

Course description

The course teaches you to use econometric methods. These are the tools economists use to evaluate or test their theories using real-world data. The first half of the course will concentrate on ordinary least squares regression. After a brief review of statistics, the assumptions underlying the linear regression model are introduced. A lot of time is spent discussing estimation, properties of the estimator, hypothesis testing, and specification issues. In the second half of the course, the standard assumptions are relaxed and the focus is more on practical considerations, extensions and applications. Theoretical and empirical problem sets are an integral part of the course and students will be required to spend some time learning to use the computer. A term paper using the methods introduced in this course is due at the end of the year. *Requirements:* some calculus and linear algebra, intermediate microeconomics, statistics

Evaluation

In the first term there will be two tests, each counting for 20% of the grade. At the end of the second term there will be a final exam worth 25% and a term paper, also due at the end, counts for 25%. Professor Maheu will provide more details about the final and term paper at the beginning of Spring Term. Theoretical and empirical problem sets throughout the year count for 10%. In case of illness, a doctor's note will be required and there will not be any make-up tests.

Course materials

Required:

Griffith, Hill, and Judge, *Learning and Practicing Econometrics*, Wiley, 1993

Recommended:

Chotikapanich and Griffiths, *Learning Shazam: A Computer Handbook for Econometrics*, Wiley, 1993

White et al., *SHAZAM User's Reference Manual Version 8.0*, McGraw-Hill, 1997

See also <http://shazam.econ.ubc.ca>

Background:

Gujarati, *Basic Econometrics*, 3rd ed, McGraw-Hill, 1995 (easier)

Johnston and Dinardo, *Econometric methods*, 4th ed, McGraw-Hill, 1997 (similar level)
Wooldridge, *Introductory Econometrics: A Modern Approach*, South-Western, 2000 (similar lvl)
Greene, *Econometric Analysis*, 4th ed, Prentice Hall, 2000 (more difficult)

Course website: <http://www.economics.utoronto.ca/jobv/ECO327Y>

An updated version of this syllabus, handouts, problem sets, and announcements will be posted here. Check regularly.

Topics (preliminary)

Winter Term

(1) Introduction

Ch 1, week 1 What is econometrics and what is it good for?

(2) Review of probability and statistics

Sets and sample spaces, basic theorems of probability theory, discrete and continuous random variables, mathematical expectation, best linear predictor, normal and related distributions, basic concepts of statistical inference, sampling, estimation, design and evaluation of hypothesis tests, construction and interpretation of confidence intervals.

Ch 2, week 2 Basic ideas
Ch 3, week 2 Estimation etc.
Ch 4, week 3 Hypothesis testing etc.

(3) Simple linear regression model

Ch. 5, week 4 The linear statistical model and assumptions underlying the ordinary least squares (OLS) estimator
Ch 6, week 4-5 Algebraic and statistical properties of the OLS estimator
Ch 7, week 5-6 Interval estimation, hypothesis testing, prediction
Ch 8, week 6 Specification issues

First test: October 22 (week 7)

(4) Linear algebra review

Handout, week 8 Operations with vectors and matrices, determinants, rank, solving a system of equations.

(5) General (multiple) regression model

Ch 9, week 9-10 The model, underlying assumptions, estimation, algebraic and statistical properties of the OLS estimator, Gauss-Markov theorem
Ch10, week 10-11 Interval estimation, hypothesis testing, choice of functional form
Ch11, week 12 Restricted estimation and hypothesis testing

Ch12, week 13 Dummy variables
Ch13, week 13 Collinearity.

Second test: around Dec 11

Spring Term

(tentative, Professor Maheu will provide more detail in January)

(6) Asymptotic distribution theory

Ch. 14

(7) Deviations from the classical assumptions

Ch. 15 Heteroskedasticity

Ch. 16 Autocorrelation

Ch. 14.4 Instrumental variable estimation

(8) Systems of economic relations

Ch. 17-19

(9) Time Series

Ch. 20-21

(10) Limited dependent variables

Ch. 23

Term papers due

Final Exam