

Carleton University
Department of Economics

ECON 5027 – Econometrics I, Sections F and G
Fall 2016

1. Instructor: Marcel Voia **TA:** TBA

2. Course objectives

This course covers econometric methods associated mainly with regression analysis in cross-sectional and time-series contexts. Introductory concepts related to simple and multiple regressions are assumed to be known. Relevant fundamentals of econometric theory underlying Generalized Least Squares (GLS) and Instrumental Variables (IV) inference are introduced, with a focus on empirical applications.

The course will specifically consider: the classical regression model (a detailed review); testing linear and non-linear constraints; basic regression diagnostics; non-spherical regression errors (autocorrelation, heteroskedasticity, and a brief introduction to conditional heteroskedasticity (ARCH)); lagged endogenous variables, unit roots, and cointegration (a brief introduction); endogenous regressors and simultaneous equations. The inference methods covered include: Ordinary Least Squares; Generalized Least Squares; Indirect Least Squares; Maximum Likelihood; Instrumental Variables, including Two-Stage-Least-Squares.

The course exposition is formal and technical, yet the main focus is on applicability.

The course includes two assignments using well known data sets and econometric problems of recent interest in economics.

3. Lectures and tutorials

Section F: Lectures: Thursday, 11:35–14:25, Location: 415 St. Patrick’s Building; Tutorials: Wednesday, 18:05–19:25, Location: 204 Tory Building.

Section G: Lectures: Monday, 8:35–11:25, Location: B146 Loeb; Tutorials: Tuesdays, 18:05–19:25, Location: 212 Residence Commons

These hours cover the main lectures in seminar form and mathematics, statistics, and econometric software training in tutorial form. Tutorials are compulsory and an integral part of the course. During the term, tutorials are used to solve problems relevant for the course: to understand how to solve the assignments and to prepare for the midterm and final exams. Attendance is required and cannot be substituted for by, for example, out-of-class meetings with the instructor and/or TAs.

4. Evaluation and grading scheme

1. Midterm examination (30%): 3 hours in Week 7 of the course. Students who can document a compelling reason for missing the midterm examination will be excused and their final grade will be based on their performance in the rest of the course—i.e., the weight of the midterm exam will be added to that of the final exam. There will be no deferred midterm exam offered. Without a documented, compelling reason, failure to take the midterm exam will result in a grade of zero (out of 30%).

2. Final examination (40%): 3 hours, during December examination period at a specific time and place set by the University. Failure to write the final examination will result in a grade of ABS.
3. Assignment I (15%, group work, up to 2 students per group): due on Thursday, November 3 by 16:00 (in class). Failure to hand in Assignment I on time will result in a grade of zero (out of 15%).
4. Assignment II (15%, group work, up to 2 students per group): due on Tuesday, December 1 by 16:00 (in class). Failure to hand in Assignment II on time will result in a grade of zero (out of 15%).
5. The student can receive bonus points = $\max\{0, 0.1 * (\text{grade} - 70)\}$ where the grade is for the math(stats) part of the ECON 4995 course and the bonus points are added to the student's grade.
6. Standing in a course is determined by the course instructor, subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

5. Regulations

1. Plagiarism: Please be aware that plagiarism is serious offence at Carleton and should be recognized and avoided. For information on how to do so, please see “Pammett on Plagiarism and Paraphrasing” at www.carleton.ca/economics/courses/writing-preliminaries.
2. Academic accommodation requests: See the Equity Services Web site at www.carleton.ca/equity. See also the page at www.carleton.ca/registrar/registration/dates-and-deadlines for official University dates and deadlines.
 - a) For religious obligations: To be worked out on individual basis with the instructor. Consult the Equity Services Web site or an Equity Advisor for relevant policy and the list of Holy Days.
 - b) For pregnancy: Contact Equity Services to obtain letters of accommodations.
 - c) For students with disabilities: Students with disabilities needing academic accommodations are required to contact a coordinator at the Paul Menton Centre (PMC) to complete the necessary letters of accommodation. The student must then make an appointment to discuss their needs with the instructor at least two weeks prior to the first class test or ITV test. This is to ensure that sufficient time is available to make the necessary accommodation arrangements.

6. Textbooks

1. Basic textbook: Greene W. H. (2012). *Econometric Analysis*, 7th Edition, New Jersey: Prentice Hall.
2. Reference manuals (class notes will be made available to guide readings; selected exercises will be provided to help students prepare for the exams):

- a) Davidson R. and J.G. MacKinnon (2004). *Estimation and Inference in Econometrics*, 2nd Edition. Oxford University Press
- b) Stewart, K. G. (2005). *Introduction to Applied Econometrics*. Thomson Brooks/Cole.
- c) Stock J. H. and Watson M. W. (2010). *Introduction to Econometrics*, 3rd Edition. Addison-Wesley.
- d) Wooldridge J. M. (2009). *Introductory Econometrics: A Modern Approach*, 4th Edition. South-Western College Publishing.

7. Proposed course outline

- 1. Weeks 1, 2, 3: Chapters 2, 3, 4, & 5; some sections of Chapter 1 and Appendices A & B.
- 2. Weeks 4 and 5: Chapter 9; some sections of Appendices C, D, and E.
- 3. Week 6: Pre-midterm-exam exercise sessions.
- 4. Week 7: Midterm examination; STATA training.
- 5. Week 8: Chapter 20; some sections of 21.4
- 6. Week 9: STATA training.
- 7. Weeks 10 and 11: Chapter 8; training—empirical work.
- 8. Week 12: Pre-final-exam exercise sessions.