

Econometrics I

Department of Economics

ECON 5575 Fall 2026

Dalhousie University operates in the unceded territories of the Mi'kmaw, Wolastoqey, and Peskotomuhkati Peoples. These sovereign nations hold inherent rights as the original peoples of these lands, and we each carry collective obligations under the Peace and Friendship Treaties. Section 35 of the Constitution Act, 1982, recognizes and affirms Aboriginal and Treaty rights in Canada.

We recognize that African Nova Scotians are a distinct people whose histories, legacies, and contributions have enriched the part of Mi'kma'ki known as Nova Scotia for over 400 years.

Course Instructor

Name	Email	Office Hours
Yulia Kotlyarova	yulia.kotlyarova@dal.ca	Monday & Wednesday 1:30 – 2:30 pm or by appointment 6220 University Ave, C32

Course Description

This course is designed to introduce students to commonly used econometric concepts and methods in economic research. It will examine both the classical linear regression model and linear models under more general assumptions, with a focus on estimation, inference, and forecasting. It also provides an introduction to asymptotic theory and maximum likelihood approach.

Course Structure

Lectures (in person): Monday and Wednesday 11:35 am – 12:55 pm MCCAIN 1198

The lectures will not be recorded.

Course Materials

Required textbook: R. Davidson and J. MacKinnon (2004) "Econometric Theory and Methods", Oxford University Press.

You may download a free PDF version of the book from <http://qed.econ.queensu.ca/ETM/>.

Additional reading materials will be posted on Brightspace or distributed in class. Please check regularly the course page on Brightspace for course announcements and assignments.

Other useful textbooks:

Greene, W. H. "Econometric Analysis", Pearson, editions 6, 7 or 8

Hansen, B. (2022) "Econometrics", Princeton University Press

Heij, C., P. de Boer, P. H. Franses, T. Kloek, H. K. van Dijk (2004) "Econometric Methods with Applications in Business and Economics", Oxford University Press (available online for DAL users)

Spanos, A. (1999) "Probability theory and statistical inference: econometric modeling with observational data", Cambridge University Press (available online for DAL users)

Wooldridge, J. M. (2010) "Econometric Analysis of Cross Section and Panel Data", MIT Press

Software

Statistical packages STATA and R (open source). StataNow/SE 19 can be downloaded from <https://software.library.dal.ca/>.

Assessment

Component	Weight, % of final grade	Date
4 assignments	30%	to be determined
Midterm	25% (80 min, in person)	in class, 4 November 2026 (tentative)
Final exam (cumulative)	45% (3 hrs, in person)	scheduled exam period

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Faculty of Graduate Studies Scale:

A+ (90-100) **A** (85-89) **A-** (80-84) **B+** (77-79) **B** (73-76) **B-** (70-72) **F** (<70)

Course Policies on Missed or Late Academic Requirements

There will be no make-up midterm exam. If students miss the midterm for a valid reason, they must inform the instructor by email on the day of the exam (or earlier). Their final exam will count for 70% of the final grade.

If a student cannot submit an assignment on time for a valid reason, the student must contact the instructor prior to the assignment deadline to discuss alternative arrangements.

If a student misses the final exam for a valid reason, the student must notify the instructor as soon as possible. The student will have an opportunity to write a make-up final exam.

Course Policies related to Academic Integrity

The students are not allowed to collaborate on the assignments and exams. The use of generative AI is not permitted. The full text of Dalhousie's *Policy on Intellectual Honesty and Faculty Discipline Procedures* is available here:

http://www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html

Learning Objectives

This course introduces statistical tools for the analysis of economic and financial data. The students registered for the course are expected to have good knowledge of matrix algebra, calculus, probability theory, and statistics.

The students will learn how to

- formulate and discuss the multiple linear regression model and its underlying assumptions;
- derive the Ordinary Least Squares estimators and analyze their statistical properties;
- conduct hypothesis testing of economic questions based on estimates from regression models;
- determine the consequences of multicollinearity, omitted variables, functional form misspecification, autocorrelation and heteroskedasticity in multiple regression models;
- evaluate the adequacy of the estimated regression models by performing specification tests;
- work with generalized least squares.

Course Content

Weeks 1 - 2	Probability theory and elements of asymptotic theory (DM Ch. 1, Heij Ch. 1, 2)
Weeks 3 - 4	Classical linear regression model: geometry of ordinary least squares (DM Ch. 2)
Weeks 5 - 6	Statistical properties of OLS (DM Ch. 3, Heij Ch. 3)
Weeks 7 - 10	Hypothesis testing in linear regression models (DM Ch. 4, 5, Heij Ch. 3)
Week 11	Generalized least squares (DM Ch. 7, Heij Ch. 5)
Week 12	Maximum likelihood estimation (DM Ch. 10, Heij Ch. 4)

Syllabus Appendix: Student Supports & University Statements, Policies, and Guidelines