# Econometric Theory I, ECON 371

Department of Economics

St. Francis Xavier University

Autumn 2024

**Instructor:** Teng Wah LEO

**Time Blocks and Location:** X1/X2 (Tuesday, 8:30 a.m.–9:45 a.m.; Friday, 10:00 a.m.–11:15 a.m.) at Mulroney Hall, MULH3026.

**Office Hours:** Tuesdays from 10 a.m.–11 a.m. & 4 p.m.–5 p.m.; Thursdays from 10 a.m.–11 a.m & 12:30 p.m.–2:30 p.m.; Fridays from 2:30 p.m. to 3:30 p.m. at Mulroney Hall, Room 3073. All other times, by appointment only.

**Objective:**

The course is designed to introduce students to the methodology of Econometrics as a whole subfield in Economics dedicated to measurement of both market and social phenomenon/occurrences for the purpose of policy analysis. The structure of the course is in three facets, 1. Basic Statistical Ideas, 2. Computational Aspect of Econometrics, particularly the use of STATA statistical software, and 3. Intuition behind Econometrics, and its place in Economics. The course helps to lay the statistical and mathematical foundation on which the student can build upon in their application of econometric models, and its analysis. Students are expected to be proficient in Calculus and basic Statistics. [**Prerequisites: MATH 111, MATH 112 & STAT 231**]



**Drop-Date:**

Students may drop a course, online in Banner, on or before **October 30$^{\text{th}}$, 2024**. After this date students are not permitted to drop courses without permission from their Dean. (Please see 3.1 in academic calendar for policy regarding course drops).

**Evaluation:**
There will be 4/5 equally weighted take-home tests, each of which may include theoretical and/or applied elements. The take-home tests are worth a total of 60% of your final grade. It is recommended that assignments be typed using LaTeX, so to that end additional credit will be awarded for submissions in LaTeXcompiled pdf submission, over and above the quality of the work. There will be one midterm test on the 25th October 2024, and a final examination, each worth 20%.

**Note:**
All tests and examinations are compulsory. Should you miss an examination/test without an appropriate reason provided prior to the date of the examination/test at the latest, you will be awarded a mark of zero for that examination/test. There is no recourse after the fact.

**Equitable Learning:**
Everyone learns more effectively in a respectful, safe, and equitable learning environment, free from discrimination and harassment. I invite you to work with me to create a classroom space – both real and virtual – that fosters and promotes values of human dignity, equity, non-discrimination, and respect for diversity.

**Required Text:**

- **(JW)** Jeffrey M Wooldridge. 2015, *Introductory Econometrics: A Modern Approach*, South-Western College, 6th edition.

**Supplementary Reading:**

- James G MacKinnon and Russell Davidson. 2003, *Econometric Theory and Methods*, Oxford University Press.
- Christopher F. Baum. 2006, *An Introduction to Modern Econometrics Using Stata*, Stata Press.

**Approach to the Course:**

You are strongly encouraged to follow the class discussions actively through participation so as to build up your confidence in public speaking, and through the follow up considerations of the material both independently and in groups. There is the additional resource of typed notes on the course website, https://people.stfx.ca/tleo/Econometrics.html, which you may read in concert with the textbook to gain a deeper understanding. You are also strongly advised to attempt all the questions posted during the class and on the notes after class. You are free to ask me any questions during classes and office hours. It is beneficial at this juncture of your academic career to form yourselves into study groups, which would help you understand and consolidate the subject matter taught through discussions. You are expected to think critically, and not merely memorize the details by rote.

**Course Outline:**

1. What is Econometrics? (JW Chapter 1) – 1 Week
2. Introduction to Probability Theory & Mathematical Statistics. (Course Notes) -– 3 Weeks
3. Estimation & Hypothesis Testing. (Course Notes) — 2 Weeks
4. Gauss Markov Assumptions & Ordinary Least Squares (OLS) Regression. (JW Chapters 2-4) — 2 Weeks
5. OLS Regression & STATA. (Course Notes) -– 3 Weeks
6. Estimation Issues with OLS (JW Chapter 6) — 2 Weeks