Quantitative Methods in Economics, ECON 271:10

Department of Economics

St. Francis Xavier University

Autumn 2025

Instructor: Teng Wah LEO

Time Blocks and Location: U7/U8 (Monday, 2:30 p.m.–3:45 p.m.; Thursday, 4 p.m.–5:15 p.m.) at Mulroney Hall, MULH4022.

Office Hours: Mondays from 10 a.m.–11 a.m.; Thursdays from 2:30 p.m.–3:30 p.m; Fridays from 10:00 a.m.–12:00 p.m. & 1:00 p.m.–3:00 p.m. at Mulroney Hall, Room 3073. All other times, by appointment only.

Objective:

This course introduces students to quantitative and mathematical tools commonly used in the study of economics and finance. Topics include functions of one ormore variables, financial mathematics, differential calculus, matrix and linear algebra. Applications include computing elasticities, micro and macroeconomic equilibria, cost minimization and profit maximization, constrained optimization, interest rates, present value and bond pricing.**Prerequisite: ECON 101.**

Drop-Date:

Students may drop a course, online in Banner, on or before **November 5$^{\text{th}}$, 2025**. 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 equally weighted in class **surprise quizzes**, testing on materials covered prior, and the content tested is not cumulative. Each of the quiz is worth 10%, for a total of 40% of your final grade. In addition, there will be a mid-term test on the **9$^{\text{th}}$ October 2025**, and a final examination, each worth 30%.

Note:
All assignments, tests and examinations are compulsory. Should you miss an assignment/test/examination without an appropriate reason provided prior to the date of the assignment/test/examination 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.

Reference Texts:

- Kevin Wainwright & Alpha C. Chiang. 2004, *Fundamental Methods of Mathematical Economics*, McGraw-Hill/Irwin, 4$^{\text{th}}$ edition.

- Michael Klein. 2001, *Mathematical Methods for Economics*, Pearson, 2$^{\text{nd}}$ edition.

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. Introduction (1 Week)
2. Functions & Limits (2 Week)
3. Derivatives & the Applications (2 Weeks)
4. Integral Calculus (2 Weeks)
5. Additional Ideas in Differential Calculus (Exponential & Logarithmic Functions)(1 Weeks)
6. Constrained Optimization (2 Weeks)
7. System of Equations & Matrix Algebra (2 Weeks)