Mathematical Economics, ECON 471
Department of Economics
St. Francis Xavier University
Fall 2016

Instructor: Teng Wah LEO

Time Blocks and Location: Q1/Q2 (Tuesday & Thursday, 2:15 p.m. - 3:30 p.m.), NH245

Office Hours: Monday & Wednesday from 11 a.m. - 2 p.m.

Objective: The course is designed to provide a mathematical foundation for Advanced Microeconomics and Macroeconomics, and future graduate work. Mathematical techniques covered includes advanced calculus, dynamic programming, and differential equations. These techniques will be applied to both micro- and macro-economic models. **Prerequisites: MATH 111, MATH 112.**

Evaluation:

1. $40\% - 4 \times$ Assignments

2. $30\% -$ Mid Term Examination

3. $30\% -$ Final Examination

Required Text:
   None.

Supplementary Reading:

Carl P. Simon & Lawrence Blume. *Mathematics for Economists*, 1st edition, W.W. Norton & Company, 1994.

Kevin Wainwright & Alpha C Chiang. *Fundamental Methods of Mathematical Economics*, 4th edition, McGraw-Hill, 2004.

Alpha C Chiang. *Elements of Dynamic Optimization*, 1st Edition, Mcgraw-Hill, 1992.

Course Outline:

1. Revision of Calculus, Chapters 1−5 & 13−15

2. Revision of Linear Algebra, Chapters 6−9

3. Euclidean Spaces & Independence, Chapters 10−11

4. Limits & Open Sets, Chapter 12

5. Optimization, Chapters 16−22

6. Ordinary Differential Equation & Optimal Control Theory, Chapters 24−25

7. Advanced Linear Algebra, Chapters 27−28

Note: All topics will conclude with their pertinent applications when sufficient skills has been accumulated.