ECO 4401: Mathematical Economics Syllabus

Instructor:	Don Tawanpitak	**Classroom:**	MAT 112
Email:	d.tawanpitak@ufl.edu	**Class time:**	T/R 11:45 AM - 1:40 PM
Office hour:	On Zoom: T/R 1.50 - 2.50 PM		
	In-person: By appointment		

Prerequisites:	Intermediate Microeconomics (ECO 3101) and Calculus I (MAC 2233)
Textbook:	*Fundamental Methods in Mathematical Economics, 4th Edition* by Alpha C. Chiang and Kevin Wainwright

1 Course Description

This course introduces students to the mathematical tools useful in economic analysis. Topics covered include linear model and matrix algebra; derivative, limit, and continuity of functions; partial and total derivatives; comparative statics; unconstrained optimization; constrained optimization with equality and inequality constraint.

2 Grading Policy

Grades are calculated as: Problem Sets 40%, Midterm 30%, Final 30%.

2.1 Problem Sets

There will be eight problem sets: five before midterm and three after midterm. Each problem set counts for 5 points toward the final grade. Students are encouraged to work in groups, but students must submit their problem sets individually. On the due date, the instructor will collect problem sets at the beginning of the class.

Because the problem sets' objective is to serve as practice questions, the instructor will weigh the score primarily on the degree of understanding and effort shown rather than the correctness. Thus, students are encouraged to show their work as much as possible.

The instructor expects students to get the full points (40%) from problem sets.

2.2 Midterm Exam

The midterm exam will be in class on Thursday, March 3rd. As a reading day, there will be no class on Tuesday, March 1st. Students who cannot take the exam on this date must notify the instructor 14 days in advance. A make-up exam is granted on a case-by-case basis.

2.3 Final Exam

The final exam is on Tuesday, April 26th from 7:30 AM - 9:30 AM.

2.4 Guidelines for Answering Problem Sets and Exams

  I. **Readability:** Students must ensure that their answers to the problem sets and exams are readable to the instructor. Unreadable answers will not be graded.

 II. **Answer the question:** Students should read questions carefully, answer everything that each question asks for, and attempt to answer all questions for some partial credits.

3 Grading Scale

- A   :   94.0 - 100.0
- A− :   91.0 - 93.9
- B+ :   88.0 - 90.9
- B   :   82.0 - 87.9

- B− :   79.0 - 81.9
- C+ :   76.0 - 78.9
- C   :   70.0 - 75.9
- F   :   < 70.0

4 Course Outline

Introduction

Lecture 1 (Jan 6th)	:	Syllabus
Lecture 2 (Jan 11th)	:	Equilibrium Analysis in Economics (Chapter 3)

Part 1: Linear Models and Matrix Algebra

Lecture 3 (Jan 13th)	:	Matrix Algebra I (Chapter 4)
Lecture 4 (Jan 18th)	:	Matrix Algebra I (Chapter 4)
Lecture 5 (Jan 20th)	:	Matrix Algebra II (Chapter 5)
Lecture 6 (Jan 25th)	:	Matrix Algebra II (Chapter 5)

Part 2: Differentiation and Comparative Statics

Lecture 7 (Jan 27th)   :   Comparative Statics (Chapter 6)
Lecture 8 (Feb 1st)   :   Rules of Differentiation (Chapter 7)
Lecture 9 (Feb 3rd)   :   Rules of Differentiation (Chapter 7)
Lecture 10 (Feb 8th)   :   Comparative Statics of General-Functions Models (Chapter 8)
Lecture 11 (Feb 10th)   :   Comparative Statics of General-Functions Models (Chapter 8)

Part 3: Optimization Problems

Lecture 12 (Feb 15th)   :   Optimization - Single Choice Variable (Chapter 9)
Lecture 13 (Feb 17th)   :   Optimization - Single Choice Variable (Chapter 9)
Lecture 14 (Feb 22nd)   :   Exponential and Logarithmic Functions (Chapter 10)
Lecture 15 (Feb 24th)   :   Exponential and Logarithmic Functions (Chapter 10)

March 1st   :   **Reading day**
March 3rd   :   **Midterm Exam**
——————————————————————— **Spring Break** ———————————————————————

Part 3: Optimization Problems (continued)

Lecture 16 (Mar 15th)   :   Optimization - Two or More Choice Variables (Chapter 11)
Lecture 17 (Mar 17th)   :   Optimization - Two or More Choice Variables (Chapter 11)
Lecture 18 (Mar 22nd)   :   Optimization - Two or More Choice Variables (Chapter 11)
Lecture 19 (Mar 24th)   :   Optimization with Equality Constraints (Chapter 12)
Lecture 20 (Mar 29th)   :   Optimization with Equality Constraints (Chapter 12)
Lecture 21 (Mar 31st)   :   Optimization with Equality Constraints (Chapter 12)
Lecture 22 (Apr 5th)   :   Optimization with Inequality Constraints (Chapter 13)
Lecture 23 (Apr 7th)   :   Optimization with Inequality Constraints (Chapter 13)
Lecture 24 (Apr 12th)   :   Optimization with Inequality Constraints (Chapter 13)
Lecture 25 (Apr 14th)   :   Optimization with Inequality Constraints (Chapter 13)
Lecture 26 (Apr 19th)   :   Optimization with Inequality Constraints (Chapter 13)

April 21st   :   **Reading day**
April 26th   :   **Final Exam**