FACULTY OF LIBERAL ARTS & PROFESSIONAL STUDIES
DEPARTMENT OF ECONOMICS

APPLIED MICROECONOMICS
ECON 5010

Fall 2024
Wednesdays, 11:30 AM – 2:30 PM (R N120)

(Tentative)

Instructor: Selçuk Özyurt

E-mail : ozyurt@yorku.ca (Always include "ECON 5010" in the subject line)
In-person Lectures : R N120 (Ross Building - North) – Starting September 4th, 2024
Office Hours : Upon Request

Teaching Assistant: TBA

e-mail : TBA
Office Hours : TBA

Course Description and Objective:

In this course, we will explore the theory and applications of microeconomic theory at a graduate level. The goal of microeconomics is to model economic activities as interactions between individual economic agents who pursue their private interests under resource constraints. It involves analyzing the behavior of consumers, workers, firms, and any other individual or entity that plays a role in the functioning of the economy.

This course provides a deeper and more thorough examination of microeconomic concepts typically covered in undergraduate studies. Therefore, it is essential for students to have prior exposure to intermediate or advanced microeconomic theory as well as calculus. The course will involve a rigorous analysis of consumer behavior (demand side), firm behavior (supply side), and the determination of prices and output levels in both competitive and imperfectly competitive markets.

Course Textbooks:

We will not follow a textbook through and through. I will provide some lecture notes and occasionally refer to some chapters of the following books:

Microeconomic Theory: Basic Principles and Extensions, Nicholson, Walter, and Christopher M. Snyder.
Lecture Notes in Microeconomic Theory, The Economic Agent, Ariel Rubinstein
Advanced Microeconomic Theory, Geoffrey A. Jehle and Philip J. Reny (JR)

Additional (suggested) textbooks:
Varian, Hal R., 1992. Microeconomic Analysis. Third Edition. W.W. Norton Company.
Kreps, David M., 1990. A Course in Microeconomic Theory. Princeton University Press.
Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, 1995. Microeconomic Theory. Oxford University Press.
Silberberg, Eugene, and Wing Suen, 2001. The Structure of Economics: A Mathematical Analysis. Third Edition. McGraw-Hill/Irwin.
Microeconomics Theory, Mas-Collel, Whinston and Green (MWG).
The Theory of Industrial Organization, J. Tirole

Expectations and Rules:

The course objectives have been outlined in the course description and objectives section above. The course materials, including lectures, lecture notes, sample questions, and examples, have been designed with a holistic approach to help students achieve the stated objectives. The focus will be on supporting students' understanding of the concepts rather than preparing them for a test. Course materials will be necessary for success in tests, but they will not be sufficient. Self-study and self-learning will be an essential part of success in tests.

The tests will assess how well the students have excelled at the stated objectives. They will evaluate the student's proficiency in the subject matter and their ability to apply the acquired knowledge to related but different scenarios. Unlike standardized tests, the assessments will measure the student's ability to analyze, reason, and solve problems related to the subject matter.

Students should utilize both inductive and deductive learning methods. For deductive instructions, please refer to the course textbook and my online lecture videos, where I will introduce and explain concepts and theories thoroughly. During our in-person lectures, I will primarily use an inductive teaching approach, presenting various problems and guiding you in discovering, recognizing, and solving these problems.

While attending in-person lectures is not mandatory, I highly encourage you to actively participate in classes by asking and answering questions and contributing to discussions, as this can significantly enhance your learning experience. Active class participation (should not be confused with attendance) will be rewarded as a bonus.

I kindly request that you avoid causing any disruptions during ongoing discussions if you choose to enter or exit the classroom, which you are free to do at any time. The use of mobile phones is strictly prohibited

during lectures to maintain a constructive learning environment. Violators of these rules will be penalized by the deduction of bonus points. The use of tablets or laptops is permitted only for taking notes.

The final grade will be determined by two midterms, a final exam, and active class participation, which is a bonus. Here is the breakdown:

Midterm 1 : 25 points
Midterm 2 : 30 points
Final : 45 points
(Bonus : 20 points)

The midterm exams will be held in class (see below for the dates), and the final exam will take place during the official final exam period and include the material covered during the entire course. ***Extra credit and additional work will not be offered, and grades are non-negotiable***.

If you miss a midterm exam, you must provide an acceptable reason within 72 hours. If your excuse is deemed acceptable, a joint make-up exam for both midterms will be scheduled after the second midterm test. A deferral for the Final Exam will be granted only for medical reasons. In such cases, students should submit a deferred exam application through the following website (CLICK HERE). The form must be completed **within 48 hours of the exam time.**

Your letter grade will be calculated according to the following scheme:

100 – 90	A+
90 – 85	A
85 - 80	A-
80 - 70	B+
70 - 55	B
55 - 45	C
45 - 0	F

The outline for each week's topics is available on e-Class and presented at the end of this syllabus. I will also share lecture notes and sample questions on eClass for you to study. It's your responsibility to review these materials. I don't have a fixed schedule for office hours, so please email me in advance to schedule a (virtual) meeting (over Zoom).

Important Dates

September 4 – Wednesday – Lecture 1 (first meeting)
October 2 – Wednesday – Midterm exam 1 (covers week 1-4)
November 6 – Wednesday – Midterm exam 2 (covers week 6-8)
November 27 – Wednesday – Last lecture

Important Course Information

Academic integrity is a fundamental and important value of York University. To maintain a fair and honest learning environment, students in this course are responsible for understanding and upholding academic integrity in all of their academic activities. To better understand expectations, familiarize yourself with the Senate Policy on Academic Conduct. To learn more about how to demonstrate academic integrity in your courses and to access related resources and support, visit the Academic Integrity website.

Course Outline

WEEK 0 (Self-study)
TOPICS: MATHEMATICS AND LOGIC REVIEWS

1. Basic Concepts in Mathematics
2. Propositional Logic
3. Optimization
4. Probability
5. Topology

Week 1 (September 4th)
TOPICS: CHOICE AND PREFERENCES

1. Economics as a Study of Incentives and Choice
2. Choice and Preferences
3. Utility Representation
4. Choice Behavior, Choice Functions, and Condition Alpha
5. "AS IF" approach & "Rational" Behavior
6. Lexicographic Preferences
7. Continuity of Preferences

Week 2 (September 11th)
TOPICS: UTILITY FUNCTIONS, UTILITY MAXIMIZATION & EXPENDITURE MINIMIZATION

1. Indifference Curves
2. Marginal Utility
3. Marginal Rate of Substitution (MRS) and Convexity of Preferences
4. How to Draw Indifference Curves and Calculate Marginal Rate of Substitution: Examples
5. Utility Maximization and Choice
6. Mathematical Solution for Utility Maximization Problem with n Variables.
7. Numerical Examples for Utility Maximization.
8. Indirect Utility Functions and Lump-Sum Principle
9. Envelope Theorem and Roy's Identity
10. Expenditure Function

Week 3 (September 18th)
TOPICS: DEMAND THEORY

1. Demand Functions: Marshallian vs Hicksian Demands
2. Demand Curves: Marshallian vs Hicksian (Compensated) Demand Curves
3. Equivalence of Marshallian and Hicksian Demand Curves
4. Finding Income and Substitution Effects: Slutsky Decomposition Method
5. Finding Income and Substitution Effects: Hicks Decomposition Method
6. Shephard's Lemma and Slutsky Equation
7. Consumer Surplus: Compensating and Equivalence Variations

Week 4 (September 25th):
TOPICS: UNCERTAINTY

1. Introduction to Uncertainty and Risk
2. Risk Preferences
3. Expected Utility Theory
4. Expected Utility Theory at Work: Numerical Examples
5. First Order Stochastic Dominance
6. Second Order Stochastic Dominance*
7. Risk Aversion and Concavity
8. Certainty Equivalence and Risk Premium

Week 5 (October 2nd): MIDTERM EXAM 1 (in class – covers weeks 1-4)

Week 6 (October 9th)
TOPICS: PRODUCTION

1. Introduction to Producer Theory
2. Production Functions
3. Production Functions: Returns to Scale
4. Cost Functions
5. Cost Minimization Problem
6. Total Cost, Average Cost vs Marginal Cost
7. Profit Maximization

Week 7 (October 23rd)
TOPICS: PARTIAL EQUILIBRIUM

1. Perfectly Competitive Markets and Partial Equilibrium Analysis: Introduction
2. Market Demand or Aggregate Demand
3. Demand Elasticity
4. Perfectly Competitive Markets
5. Short Term Market Supply
6. Perfectly Competitive Equilibrium Price
7. Long-Run Equilibrium of Perfectly Competitive Markets and Zero Economic Profit
8. Long-Run Supply Curves
9. Welfare Analysis: Consumer and Producer Surpluses and Deadweight Loss

Week 8 (October 30th)
TOPICS: GENERAL EQUILIBRIUM

1. General Equilibrium: Introduction to Pure Exchange Economy
2. Edgeworth Box and Feasible Allocations
3. Trade in Pure Exchange Economy
4. Pareto Efficiency (Optimality)
5. How to Find Pareto Efficient Allocations and Contract Curve
6. How to Find Core Allocations?
7. Walrasian Equilibrium
8. How to Calculate Equilibrium Prices in a Pure Exchange Economy?
9. General Equilibrium with Production: How to Calculate Equilibrium Prices?
10. First Welfare Theorem
11. Second Welfare Theorem

Week 9 (November 6th): MIDTERM EXAM 2 (in class – covers weeks 6-8)

Week 10 (November 13th)
TOPICS: GAME THEORY: BASIC SOLUTION CONCEPTS AND APPLICATIONS

1. Strategy in Games
2. Normal (Strategic) Form Representation of Games
3. Beliefs & Mixed Strategies
4. General Assumptions and Methodology
5. Strategic Dominance
6. Best Response
7. Dominance versus Best response
8. Weak Dominance
9. Rationalizability & Iterated Elimination of Strictly Dominated Strategies (IESDS)

Week 11 (November 20th)
TOPICS: NASH EQUILIBRIUM

1. Nash Equilibrium in pure strategies
2. Finding Pure Strategy Nash Equilibrium: Examples
3. Mixed Strategy Nash Equilibrium
4. Mixed Strategy Nash Equilibrium, Strict Dominance, and Efficiency

Week 12 (November 27th):
TOPICS: EXTENSIVE FORM GAMES WITH PERFECT & IMPERFECT INFORMATION

1. The Basics of Extensive Form Games
2. Extensive Form Games: The case of Ultimatum Offer Bargaining Game
3. Nash Equilibrium in Extensive Games
4. Sequential Rationality and Backward Induction
5. Backward Induction, Subgame Perfect Nash Equilibrium & Nash Equilibrium
6. Examples for Subgame Perfect Nash Equilibrium
7. Subgame Perfection for Extensive Form Games with Imperfect Information
8. One Deviation Property: A Generalization of Backward Induction
9. Applications.