Econ 6112 U01: Fundamentals of Microeconomics

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Lecture:

GC 287B, TH 12:30 – 1:45pm, Fall 2021.

Welcome to Econ 6112. I'm looking forward to this semester and am excited for you to learn the concepts we will cover. Please read through this syllabus. As explained below, we'll use hybrid approach to our remote learning this semester. Our synchronous meetings will be on Thursdays from 12:30 to 1:45pm. We'll discuss this further in our first meeting.

Course Description:

(from the catalog) Consumer theory, producer theory and the introduction of uncertainty and dynamics. Market equilibrium and welfare properties of perfect competition and monopoly. Public goods and externalities. Prerequisites: One semester of Calculus and Statistics.

Course Goal:

That you learn the fundamentals of economic models of consumer and producer decision making, and learn to think strategically.

Course Objectives:

This course will focus on microeconomic theory. The first part of the course will focus on decisions of perfectly competitive consumers and firms. These are classic problems in microeconomics. The second part of the course will focus on game-theoretic analysis of several classes of problems where perfect competition does not hold. Game theory allows us to model and predict behavior in a strategic situation. A strategic situation is one in which the actions of one person influence the payoff of another. You will encounter many such situations in most facets of life. The coverage of material will emphasize conceptual and fundamental understanding.

This is the first course in the microeconomics sequence, and will provide a basis for the next two courses. Further, it will provide some of the standard knowledge needed for some advanced courses and the profession. I believe the concepts we will cover in this course are very useful for many problems you will analyze in your career and am excited to help each of you to learn these. The ways in which we will approach problems will help develop your intuition and mathematical problem solving skills.

How to do Well:

An important step for learning the material is doing lots of practice problems. I will guide you in this in several ways. Our synchronous meetings will focus on practice problems. I will also suggest problems from the text, and provide previous exams (with solutions). These problem solving skills can be developed, regardless of your background or preparation for this course. Just like exercise, learning a musical instrument, a sport, or foreign language, learning the material and getting better at it requires time and effort. Of course, I will provide guidance.

In my experience, working consistently on learning the course material and on practice problems is very helpful. To help and encourage this, a portion of your grade will be based on you watching the recorded lectures and reflecting on what you have learned. Another portion will be based on you doing regular (almost weekly) homework assignments.

Course Format:

As noted above, we'll use a hybrid type format. This meeting will be on Thursdays from 12:30 to 1:45pm, which is our scheduled class time. We will primarily use this time to actively work on problems related to that week's topic. I anticipate this to be quite helpful since solving problems is an important skill to develop in order to learn the material and do well in the course.

Since the synchronous meeting time will primarily be used for doing problems, the introduction of the concepts will occur outside of class time. This will be done through recorded lectures, reading the text, and also practicing problems on your own. In addition to the recorded lectures, the slides for them are also available in Canvas. Some of the recordings will include worked out example problems. I've tried to keep the recordings short and engaging.

A typical week will proceed as follows. You'll be asked to watch the recorded lectures for that week's topic by Tuesday of that week. In addition to that you'll be asked to post in the relevant discussion on Canvas a reflection comment by 11:59pm on that Tuesday. This asks you to describe, based on the recordings you viewed, something you learned, a way you can apply it to the real world, and a question you have. The reason that I ask that this be done by Tuesday night is so that I have time to see what questions you all have and tailor our activities on Thursday to

address questions. I'll also ask that you respond to the posts of at least two of your classmates. You will have until Tuesday the following week to do that. Naturally, completing your reflection posts and responding to your classmates in earnest will earn you points.

Additionally, you will be asked to complete and submit a short homework each week. This will typically be one or a few problems. These will be graded with a focus on whether you are making a good faith attempt at the problem. It is intended to provide some credit for you starting to work on problems soon after the material is covered. In addition to the homework, there are ungraded problem sets with solutions for each of the topics we will cover. There are also numerous exams from previous years with solutions in Canvas. The more formal evaluation of your knowledge of the course material will be done through two exams.

Grading:

Grades are based on the discussion posts (10%), the (almost) weekly homework (15%), participation in one experiment pilot/test run (5%), midterm exam (30%) and final exam (40%).

Examinations:

There will be a midterm examination (during our class time on October 8th) and a final examination at the University-scheduled time.

Participation in Experimental Pilot:

This will be outside of class. It will probably take about an hour and a half. I'm working on some research projects that utilize an experimental approach to understand how people apply some of the ideas we'll cover in this course. This is an opportunity to think about original research in this field. Pilot test runs of our experimental design are important for my coauthors and me in fine tuning our experimental design. Good faith participation will earn you the full 5%.

Learning Outcomes:

As a result of this course it will be possible to analyze problems faced by consumers in their selection of goods and services when they posses a great deal of information at their disposal and in basic settings with more limited information. These include utility maximization and expenditure minimization. Further, you will be able to describe components of the effects of a price change. Producers output and input decisions will be solvable. It will be possible to analyze cost minimization and profit

maximization problems in both the short and long runs. Further it will be possible to analyze the optimality or social welfare properties of market outcomes.

By the end of this course you will be able to represent many economic situations, in which the parties behave strategically, with basic games and solve for the parties' equilibrium behavior in those situations. You will be able to use, where appropriate, dominance, rationalizability, Nash equilibrium, and the standard bargaining solution. You will be able to use these concepts to analyze common resource problems, team production, the provision of public goods, externalities, and application of the Coase theorem. Additionally, you will be able to analyze strategic behavior of firms in decisions such as location.

Required Readings:

Mas-Colell, Whinston, and Green (1995), *Microeconomic Theory.* ISBN: 9780195073409.

Mas-Colell, Whinston, and Green is a very thorough text that is a very good reference. My lectures will provide more intuition. However, you may still find other texts helpful for providing more intuition. One such text (primarily for consumer and producer theory) is

Nicholson and Snyder (2007), *Microeconomic Theory: Basic Principles and Extensions*, tenth edition

or an earlier edition, such as,

Nicholson (2004) *Microeconomic Theory: Basic Principles and Extensions*, ninth edition.

For our coverage of game theory, another text that you will find to be very helpful by providing an appropriate level of formality and good intuition is

Watson (2013), *Strategy: an Introduction to Game Theory*, third edition. ISBN: 9780393918380.

Other Information:

1. The Disability Resource Center (DRC) collaborates with university faculty to provide inclusive learning environments. If you have a disability and plan to utilize academic accommodations, additional information may be found in the DRC's website: drc.fiu.edu.

2. Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and to honestly

demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Student Conduct and Honor Code procedures and sanctions as outlined in the FIU Regulation 2501 and the Student Handbook.

Anyone found guilty of academic misconduct will earn a grade of an F for the course. In addition to this academic sanction that I will impose, the Academic Integrity Office will be asked to also impose a disciplinary penalty. This will follow University procedures. Please see http://integrity.fiu.edu and the Student Handbook for more information.

3. Per University policy number 300.010, Instructors retain the right to modify the course syllabus for any reason throughout the semester provided that:
    - Fair and adequate notice is given to enrolled students either by e-mail, in writing, or through online publishing.
    - Modifications to the syllabus are not arbitrary or capricious.
    - Students are not unfairly disadvantaged by mid-semester changes to grading standards, attendance standards, or performance measures.

Information Related to the Pandemic:

As cases and hospitalizations due to the Delta variant continue to increase in our community, we must unite and take necessary steps to prevent further spread.

1. **Daily and before arriving to campus, complete the P3 app.** If you are not given the green check mark to enter campus, then return home, and contact me by email.
2. **Please check your FIU email account and your Canvas course at least once a day.** Email and Canvas are the best ways for the university, and your professors, to contact you.
3. If you do not feel well, have tested positive for COVID-19, or have been in contact with a person with COVID-19 while not yet being fully vaccinated, please do not come to class, immediately complete the P3 app to notify the COVID Response Team or call them at 305-348-1919, and contact me by email as soon as you can. In order to receive an excused absence for P3 failure/COVID-19, you must contact the COVID Response Team at 305-348-1919. If you are directed to isolate or quarantine because of COVID-19, your absences will be considered excused. The make-up policies are outlined in this syllabus.

4. Per recent CDC guidelines, a vaccinated, asymptomatic individual exposed to a COVID-19 positive person does not need to isolate or quarantine. Nevertheless, it is strongly encouraged to continue to wear a mask. Furthermore, it is recommended to get tested 3-5 days after a known exposure. However, if at any time you become symptomatic, you need to test immediately. If the test returns positive, you will need to follow the COVID-19 positive protocol at that time.

   (a) "Asymptomatic" means (of a condition or a person) producing or showing no symptoms.

   (b) "Symptomatic" means exhibiting or involving symptoms.

   (c) People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. Anyone can have mild to severe symptoms. People with these symptoms may have COVID-19:

      - Fever or chills
      - Cough
      - Shortness of breath or difficulty breathing
      - Fatigue
      - Muscle or body aches
      - Headache
      - New loss of taste or smell
      - Sore throat
      - Congestion or runny nose
      - Nausea or vomiting
      - Diarrhea

5. **Please take every precaution to keep yourself and others healthy. Per CDC guidelines, you are encouraged to get vaccinated and strongly advised to wear a mask indoors and in public including all FIU facilities.**

6. Missing excessive days may lead to failing a class or a grade of incomplete.

7. For me to assist you in achieving your goals, it is important for you to contact me as soon as you experience any events that might disrupt your course participation. For up-to-date information about COVID-19, please see the repopulation.fiu.edu FAQs.

8. Please be advised that class content may be subject to streaming or course capture for future access by students in this course. Your attendance/participation in this course constitutes consent to such recording.

Schedule:

Week 1 (week of 8/23): Introduction and Preference Orderings

Out of class:
Watch:
Course introduction recorded lecture
Introduction to consumer theory
Preference ordering recorded lecture
Read: Ch1, 2 A to C, 3.A and B
Do: Introduction post
Problem set 1: 5
In class:
Introduction and examples of preference orderings

Week 2 (week of 8/29): Preference Orderings and Utility Functions

Out of class:
Read: 3.A to C
Watch:
Monotonicity and other assumptions
Indifference curves
Representing preference orderings with utility functions
Read:
Do: reflection post
Week 2 homework
Problem Set 1: 1, 2, 3, 6,
In class:
Lexicographic preference ordering problem
Utility function problem

Week 3 (week of 9/5): Utility Maximization

Out of class:
Read:
Watch:
Utility maximization Problem
Read: 2.D to E, 3.D
Do: reflection post
Week 3 homework
Problem Set 1: 7, 8, 9, 10, 11, 12,13, 14a, 15, 16, 19, 22a-b,d, 25, 26, 35
In class:
Example linear utility maximization
Leontief utility maximization problem
Quasilinear utility maximization problem

Week 4 (week of 9/12): Indirect Utility and Expenditure

Out of class:
Read: 3.D
Watch:
Indirect utility function
Read:
Do: reflection post
Week 4 homework
Problem Set 1: 17, 18,
In class:
Linear utility indirect utility and expenditure function example
Leontief utility indirect utility and expenditure function problem
Quasi-linear utility indirect utility and expenditure function example

Week 5 (week of 9/19): Expenditure Minimization

Out of class:
Watch:
Expenditure minimization
Observations
Read: 3.E to G
Do: reflection post
Week 5 homework
Problem Set 1: 20, 21, 28, 29a-e, 30, 31
In class:
Linear utility expenditure minimization example
Leontief utility expenditure minimization problem
Quasi-linear utility expenditure minimization problem

Week 6 (week of 9/26): Comparative Statics of Demand and Slutsky Equation

Out of class:
Watch:
Elasticity
Consumer welfare
Slutsky equation
Read: 3.G to I
Do: reflection post
Week 6 homework
Problem Set 1: 24, 29d, 31d, 32, 33, 34
In class:
Elasticity problems and discussion
Leontief utility Slutsky equation problem
Quasi-linear utility Slutsky equation problem

Week 7 (week of 10/3): midterm exam

In class: midterm exam on 10/7

Week 8 (week of 10/10): Producer Theory – Profit Maximization and Cost Minimization and Firm's short run and long run decisions

Out of class:
Watch:
Producer theory introduction
Profit maximization
Cost minimization
Short run
Long run
Read: 5.A to C
Read: 5.D to G
Do: reflection post
Week 8 homework
Problem Set 2
In class:
Profit maximization problems
Cost minimization problems
Short run problems
Long run problems

Week 9 (week of 10/17): Game Theory

Out of class:
Watch:
Introduction to game theory
Extensive-form games
Normal-form games
Beliefs and mixed strategies
Dominance and best response
Rationalizability
Read: Ch 7 and 8.A to C
Do: reflection post
Week 10 homework
Game Theory Problem Set: 1a, 2, 3a-b, 4, 5a, 8, 9, 11a, 12a-c, 13a-b, 14, 15b, 16,
In class:
Dominance and best response problems
Rationalizability problems

Week 10 (week of 10/24): Game Theory – Nash Equilibrium

Out of class:
Watch:

Nash equilibrium
Read: 8.D
Do: reflection post
Week 10 homework
Game Theory Problem Set: 1, 3, 5, 6, 7, 10, 11, 12, 13, 15, 17
Problem Set 3: 11, 14,
Problem set 5: 1
In class:
Nash equilibrium examples

Week 11 (week of 10/31): Game Theory – Nash Equilibrium, Common Resource Problems, and Team Production

Out of class:
Watch:
Common resource problems
Team Production
Read: 8.D
Do: reflection post
Week 10 homework
Game Theory Problem Set: 1, 3, 5, 6, 7, 10, 11, 12, 13, 15, 17
Problem Set 3: 11, 14,
Problem set 5: 1
In class:
Common resource examples
Location-type commons problems
Team production problems

Week 12 (week of 11/7): Mixed-Strategy Nash equilibrium

Out of class:
Watch:
Mixed-strategy Nash equilibrium
Read: 8.D
Do: reflection post
Week 11 homework
Mixed-Strategy Nash equilibrium Problem Set
In class:
Mixed-strategy Nash equilibrium problems

Week 13 (week of 11/14): Externalities

Out of class:
Watch:
Externalities
Read: 11.A to B

Do: reflection post
Week 12 homework
Problem Set 3: 5, 6, 10, 12, 14
In class:
Externality problems

Week 14 (week of 11/21): Coase Theorem and Bargaining
Out of class:
Watch:
Coase theorem
Standard bargaining solution
Read: 11.A to B
Do: reflection post
Week 13 homework
Problem Set 3: 7, 8, 9, 15, 16
Problem Set 5: 4
In class:
Coase theorem problems
Standard bargaining solution problems

Week 15 (week of 11/28): Public Goods
Out of class:
Watch:
Public Goods
Groves-Clarke mechanism
Read: 11.C and 23.A to C
Do: reflection post
Week 14 homework
Problem Set 3: 13
Problem Set 4: 1 to 4
In class:
Public goods problems
Groves-Clarke mechanism problem

Final Week of Instruction: (week of 12/6)
Final exam at University scheduled time