

MICROECONOMIC THEORY ECON 301

Explore Project: 15% of final grade

The Explore Project is an opportunity for you to delve more deeply into a particular area of microeconomic theory. There are many interesting topics which we will not have the opportunity to discuss in much detail during the normal course of lectures. This is your chance to become an expert on an area or application of microeconomic theory which you find interesting *and which will be new to you and the rest of the class*.

Each student will complete the Explore Project in a small team of 2-4 members. Once teams have been formed, each team must select a topic. Either 1) the team proposes a topic related to microeconomic theory they would like to study, and I approve the topic; or, 2) the team selects a topic related to microeconomic theory from a list of suggested topics I will provide to the class.

I will supply some foundational resources to each team, including textbook excerpts, scholarly articles, and/or articles from online sources. We will meet throughout the semester to discuss the exact expectations regarding your topic. Each Explore Project Team will complete two tasks:

-Presentation (7.5%): The team will present their topic to the class at the end of the semester. In essence, the team will become class leaders, and teach the class about what they have learned. The presentation should be approximately 20-25 minutes, and use whatever techniques best communicate the subject material. You may construct class notes to put on the board, make a video, use interactive examples, or any other means you feel will help you teach the class about your subject. Also, construct a handout (maximum of one page) detailing the specifics of your topic material (relevant examples, terms and definitions, mathematical particulars). Be creative, engage the class, and be accurate! Grade will be determined by:

- Accuracy of content
- Level of interactivity and class participation
- Clarity and organization of visual presentation
- Clarity and organization of oral presentation
- Clarity and organization of handout
- Ability to answer questions from classmates/instructor

-Textbook Entry (7.5%): This is the written component of the Explore Project. In lieu of a more traditional academic paper, you will work with your team to compose a written “textbook entry” describing your findings. It should read as if it came from an economics or microeconomic theory textbook, and include a) basic definitions; b) any graphs or images relevant to your topic; c) review questions and practice problems (+ solutions) as you would find at the end of a chapter. Aim for a textbook entry which you think an intermediate- or high-level economics student could read and reasonably follow along. Your entry should include:

- Definitions (like the definitions in the little boxes on the side of the page)
- Both real-world and numerical examples of your topic
- Primary results
- Any graphical representations of your topic
- At least 5 “end of the chapter” questions, ranging in difficulty (solutions included)

Explore Project Topic Suggestions Econ 301 Microeconomic Theory

Please see me to meet and discuss any specific topics you would like to explore. I would be happy to work with you in tailoring a topic to your individual interests.

1.) Criticisms of Expected Utility

This group will examine the famous criticisms of expected utility theory presented by Daniel Kahneman and Amos Tversky (1979). Using examples, the group should discuss the certainty effect, the possibility effect, and the reflection effect.

Is the standard presentation of expected utility without flaw?

What is the certainty effect?

What is the possibility effect?

What is the reflection effect? How does this effect relate to “prospect theory”?

2.) Problems with Probability

This group will highlight how very often, individual decision makers have difficulty forming “rational” beliefs about probabilities. Such problems can be exemplified in situations like the Monty Hall problem and the Ellsberg Paradox.

What is the distinction between objective and subjective probability?

How do individuals make errors calculating probabilities in the Monty Hall Problem?

How do individuals make errors in the Linda problem?

How do individuals make errors calculating probabilities in the Ellsberg Paradox?

3.) Nudge

This group will examine the impacts of framing and context on decision making. Using many examples, the group will discuss individual cognitive biases which influence decision making, as well as when/where/how “nudges” can help individuals make better decisions?

Describe some cognitive biases (including anchoring, availability, representativeness, status quo), as well as ways in which we often attempt to address them.

What is a nudge? What is libertarian paternalism?

How can a nudge improve decision making?

Describe the role of default options in the decision making process.

4.) Auction Theory

This group will model many forms of auctions, their properties, and applications. The group will examine auctions from both the perspective of the bidder (optimal bidding strategies) and the perspective of the seller (how to design an auction to maximize the revenue generated).

Describe the many real-world applications of auction theory.

What are the most common types of auctions and their properties?

How does truthful bidding arise in a second-price sealed-bid auction?

Why does auction design matter? How does it fit more broadly into the approach of mechanism design?

5.) Repeated Games

This group will examine a particular type of dynamic game which models strategic interactions which are repeated over time. They should explain how these games differ from other dynamic games, both in strategies and in use of discounted payoffs, using an example.

In what applications would analysis of repeated games be appropriate?

How do payoffs differ in repeated games? What is a discount rate?

How do strategies differ in repeated games?

Despite the fact that in the standard application of the Prisoners' Dilemma, cooperation cannot be maintained, can it be maintained in a repeated game setting? If so, how?

6.) Social Preferences and Arrow's Impossibility Theorem

This group will explore the concept of a social preference, and the obstacles which are encountered when we try to aggregate individual preferences into a social preference. The obstacles are encapsulated in such results as Arrow's Impossibility Theorem and the Condorcet Paradox.

What is a social preference? In what contexts do we need a social preference?

How does the Condorcet Paradox illustrate the challenges in constructing a social preference?

What positive properties would we like to have in a social preference?

How does Arrow's Impossibility Theorem illustrate the challenge in constructing a social preference?

7.) Matching Markets

This group will describe the unique class of markets in which potential partners (such as buyers and sellers) are best brought together by a matching process. They will characterize these markets, properties of individual participants, as well as effective mechanisms for developing stable matchings.

What types of real-world markets are best modeled using matching markets?

What constitutes a stable matching?

Describe the deferred acceptance procedure, and its relation to stability of matchings.

How does the study of matching markets illustrate the difference between noncooperative and cooperative game theory (i.e. coalitional games)?**

8.) Giffen Goods

This group will examine the special case of the Giffen good, its place in consumer theory, and its existence (or non-existence) in the real world.

What is a Giffen good?

How could a good theoretically be Giffen? How does this relate to the concepts of income and substitution effects?

What are the implications of a good which is Giffen?

Can you give any examples of Giffen goods existing in the world? How can their existence tie in to what you have learned about consumer theory?

Learning Objectives for the Explore project:

Over the course of this project, you should:

- develop a level of mastery of a refined concept in microeconomic theory;
- make connections between this concept and its application to the world around us;
- be able to effectively teach classmates about this concept through oral and written presentation;
- learn to work collaboratively to study new ideas without direct instructor supervision;

This project encourages:

- independent learning (learning a new idea without direct instructor supervision)
- quantitative literacy
- the ability to communicate mathematical concepts
- communication skills (oral and written) more generally
- learning about a concept by considering how it would best be taught to your peers
- not being afraid to read more advanced mathematics and economic theory
- deep learning (mastery) of one focused area
- research skills
- collaborative learning (working in a group to come to a shared understanding of a new idea)

- student agency in the learning process