

ECON 3030: ADVANCED MICROECONOMIC THEORY 1

First half: Consumers and Firms

Fall 2022

Instructor:	Jetlir Duraj ^a
Lecture Times:	Mon, Wed, 8:40am-10:00am
Instructor Email:	JED169@pitt.edu
Lecture Location:	4940 WW Posvar Hall
Teaching Assistant:	Jun Hyun Ji
Recitation Time:	Fri, 2:00pm-3:15pm
TA Email:	juj25@pitt.edu
Recitation Location:	4900 WW Posvar Hall

^aCall me Liri, read as 'Leary'.

Course Page: The course website is available in Canvas: <https://canvas.pitt.edu/>. All course materials for the first part will be posted on Canvas.

Class Communications: All announcements will be posted on Canvas. It is the students' responsibility to monitor Canvas regularly.

Class Meetings:

1. I expect all classes will be recorded and the recordings made available on Canvas.
2. This class will meet in person in 4940 WW Posvar Hall unless otherwise prescribed by Pitt Covid policy.

Office Hours: Liri: Tues. 4pm-5:30pm, location: WW Posvar Hall 4119.

Jun Hyun: 2:30pm-3:45pm, location: WW Posvar Hall 4119.

On office hours: Never ever be shy to ask questions! There are no 'dumb' questions (and correspondingly, there are also no 'smart' questions).

Please try to attend in groups to create positive spillover effects with your peers. If you understand an exercise, a theorem, an example, etc. better because you were in the office hour, and know it was a 'mystery' to others as well, then you should share your deepened understanding with your other classmates.

Literature References: There is no single book which is a perfect fit for the material. You will be evaluated on how you understand and assimilate the lecture material on the slides and problem sets.

A collection of two 'classical' books which cover advanced micro for PhDs follows. You are strongly encouraged to consult them.

- Kreps, *Microeconomic Foundations 1: Choice and Competitive Markets*, Princeton University Press, 2013.
- Mas-Colell, Whinston and Green, *Microeconomic Theory*, Oxford University Press, 1995.

Audience: This course is primarily designed for graduate students in the first term of the PhD track in Economics at Pitt.

Objectives: Microeconomic Theory studies how individual economic units (households and firms) make choices given the alternatives available to them; it also studies how such choices interact in the market to

determine prices and allocate resources. In the microeconomic theory sequence for first year Phd students in economics, we shall build the mathematical and theoretical foundations of the basic constrained optimization framework used in microeconomics. This course is the first one in the sequence. Topics to be covered in the first part will include: consumer preferences and choice, classical demand theory, choice under uncertainty, producer theory. General equilibrium analysis will be covered in the second part by Luca Rigotti.

Prerequisites: Micro: Undergraduate Intermediate Microeconomics or similar classes.

Math: Math camp. Any other previous experience with quantitative methods and/or math will be helpful.

Topics:

1. Preference Relations and Choice Rules
2. WARP and Rationalizable Choices, Utility Functions
3. Preferences and Utility: Debreu's Representation Theorem
4. Structural Properties of Utility Functions and Walrasian Demand
5. Walrasian Demand and Indirect Utility Function Properties, Envelope Theorem
6. Comparative Statics, Hicksian Demand and Expenditure Function, Slutsky Decomposition
7. Monotone Comparative Statics, Finite Data, Directly and Indirectly Revealed Preferences
8. Generalized Axiom of Revealed Preferences and Afriat's Theorem, Producer Theory, Properties of Supply, Profit and Cost
9. Decision Making Under Uncertainty. Independence, Mixture Space Theorem, and Preference over Lotteries
10. Von Neumann Morgenstern Expected Utility Theorem, Anscombe-Aumann Acts, State Dependent Expected Utility
11. Anscombe-Aumann Subjective Expected Utility, Qualitative Probabilities, Paradoxes
12. Utility of Money, Risk Aversion

Very important: Go through the slides on your own before every lecture! When you do this, try to gain an understanding for the upcoming material, consult the literature references, your peers. The class is supposed to be challenging and fast-paced by design, so plan to prepare before and after each lecture on the material of the respective lecture.

Grading Policy: Each part of the micro class has equal weight: 50%. Problem sets for the first part count 40%, First Final counts 10%. Each problem set counts equally towards the overall weight of 50%.

On Problem Sets: They are assigned weekly. They are due at the beginning of the last lecture of the following week. Hand them in electronically via Canvas.

Very important: Please always type your solutions in TeX/LyX. No hand-written solutions will be accepted. This will help you getting accustomed to typing up your research ideas/work in Tex/Lyx early on, which will be very helpful for your research work.

Discussion with other students is allowed and encouraged, but you must write up each assignment individually.

Important Dates:

Final Exam for Part one on the first lecture right after we finish the material. Duration: 2 hours: from 8:15am to 10:15am.

Recitations: Recitation sessions are an important part of the course, because they provide an opportunity to review the material and deepen its understanding. These sessions will be used to solve the exercises

related to the topics covered in the lectures. In the spirit that ‘you learn better through learning-by-doing’, students may be asked to solve or contribute for the solution of certain exercises from the problem sets in the white/blackboard. Questions on the course material and especially on the problem sets, may be discussed also during recitations.

Academic Integrity:

- Cheating/plagiarism is not tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the problem set or exam will be imposed. View the complete policy at www.cfo.pitt.edu/policies/policy/02/02-03-02.html
- Sharing class materials, including problem sets and exams on the internet is a violation of academic integrity.

Disability Services: If you have a disability for which you may be requesting an accommodation, you are encouraged to contact me and also the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346(Fax), as early as possible. For more information visit www.studentaffairs.pitt.edu.

Acknowledgment: I am very grateful to Luca Rigotti for giving me access to his materials for this course.