

Microeconomic Theory I
ECON 60101 (Fall 2026)
Department of Economics • University of Notre Dame

Instructor: Maciej H. Kotowski <mkotowsk@nd.edu>

Class Meetings: Tuesday & Thursday 08:45–10:45 [DeBartolo Hall 304]

Instructor's Office Hours: Tuesday 16:00–17:30 [JNH 3016; scheduled online]

Teaching Assistant: Amber Ebeling <aebelin2@nd.edu>

Tutorial Section: Thursday 17:30–18:45 [JNH B052]

Course Website: <<https://canvas.nd.edu/courses/140877>>

1. Overview

The first half of a year-long sequence in microeconomic theory at the graduate level. Topics include consumer and producer behavior, decision making under uncertainty, welfare analysis, and general equilibrium theory.

1.1. Audience

This course is suitable for doctoral students in economics and related disciplines. Other students, including undergraduates, with adequate preparation in mathematics and economics may enroll with the instructor's permission.

1.2. Prerequisites

The most important prerequisites for the course are a willingness for critical and creative thinking, imagination, and some grit.

Economics: Enrollment in the economics doctoral program. Other students with sufficient economics and mathematics preparation may enroll with the instructor's permission.

Mathematics: Algebra, calculus, and probability theory are used freely throughout the course. Skills in logical thinking and a willingness to follow proofs are essential.

2. Requirements and Grading

The course requirements include completion of a collection of problem sets, a midterm exam, and a final exam. Your grades on these tasks will be weighted as follows to determine your course grade.

Problem Sets	15 %
Midterm Exam	35 %
Final Exam	50 %
Total	100 %

Letter grades will be assigned based on your final weighted score.

2.1. Problem Sets

Problem sets are graded primarily for completion and only a “✓± / no credit” will be offered for feedback. You are responsible for consulting the suggested solutions to verify your mastery of the material. Earning a “✓−” or better gives you full credit for the problem set. Sloppy, half-hearted, late, or incomplete work is unlikely to receive credit. Your lowest problem set grade will be dropped when calculating your course grade.

Unless noted otherwise, you may work in small groups (two or three students) on the problem sets. However, you must hand in independently written-up solutions. If you collaborate, identify other group members on your write-up. There is no need to type up your solutions, but sloppy work will not receive credit. See the course calendar for anticipated due dates.

2.2. Midterm Exam

There will be an in-class, closed-book midterm exam on October 15, 2026.

If you miss the midterm exam and your absence is excusable per university policy (e.g., a documented illness), a rescheduled exam will be arranged on a case-by-case basis. Unexcused absences will receive a grade of zero for this part of the course.

2.3. Final Exam

There will be a closed-book final exam. It has been provisionally scheduled by the registrar’s office for 19:30–21:30 on December 14, 2026. The exam’s location will be announced when available.

If you miss the final exam and your absence is excusable per university policy (e.g., a documented illness), a rescheduled exam will be arranged on a case-by-case basis. Unexcused absences will receive a grade of zero for this part of the course.

3. Tutorial Section

The teaching assistant will hold a weekly tutorial section. Most students will benefit greatly from attending the weekly tutorial section.

4. Readings and Textbooks

This course does not rely on any specific textbook. However, it is essential that you read something in preparation for each class. The textbooks below are close substitutes. You must have access to and read at least one of them regularly.

- *Microeconomic Theory* by A. Mas-Colell, M. D. Whinston, and J. R. Green (1995).
- *Advanced Microeconomic Theory* by G. A. Jehle and P. J. Reny (2011).
- *Microeconomic Foundations I: Choice and Competitive Markets* by D. M. Kreps (2013).

For some lectures there are suggested readings from the following textbooks:

- *Economics and Consumer Behavior* by A. Deaton and J. Muellbauer (1980).
- *Lecture Notes in Microeconomic Theory* by A. Rubinstein (2012).

The syllabus includes references to articles in academic journals. These are accessible electronically through the university library. There are also “classic” references to well-known monographs or journal articles. Classic readings are optional unless noted otherwise.

5. Audio/Video Recordings

You are kindly asked to not make personal audio or video recordings of the lectures.

6. Contingency Planning

Events beyond the instructor’s control may affect the course. The following principles will guide this course’s response and adaptation in such cases.

1. Please follow the university’s health and safety guidance when on campus.
2. Unless instructed otherwise, please submit all coursework in hardcopy. In case of an absence, please contact the instructor to arrange for electronic submission.
3. In exceptional cases of a prolonged absence or a disruption to in-person instruction, take-home exams may be substituted for in-class exams at the instructor’s discretion.

7. Advice

1. Understand and follow the university's Academic Honor Code.
2. Exam questions will resemble problem set questions.
3. Look beyond the assigned class material for more practice problems.
4. Scan or photocopy your problem set answers before submitting them.
5. Read the assigned readings twice—before *and* after lecture.
6. If pressed for time, practice solving problems in lieu of memorizing an assigned reading.
7. Please inform the instructor of typos and suspected mistakes in course materials.
8. Please ask questions in class. Illuminating digressions are exciting.
9. Please make use of office hours. Even if you have no specific questions about the course material, please feel welcome to visit, chat, ask questions, or simply say hello.

8. Credits and Acknowledgements

This course draws on material that I was fortunate to encounter as a student, teaching assistant, and faculty member. Of particular note are lectures by, teaching materials prepared by, or discussions with David Ahn, Bob Anderson, Chris Avery, Shachar Kariv, Nolan Miller, Michèle Müller-Itten, Matthew Rabin, Chris Shannon, Pete Troyan, and Richard Zeckhauser. Several lectures build on course materials originally prepared for ECON 2020a taught at Harvard University. I have also benefited from the feedback of former students and teaching assistants. Their comments have helped improve the class.

9. Course Calendar

The calendar may be adjusted depending on our progress.

	Date	Day	Topic	Due
1	Aug 25	Tu	Introduction / Mathematical Preliminaries 0	
2	Aug 27	Th	Mathematical Preliminaries 1: Definitions and Essentials	
3	Sep 1	Tu	Mathematical Preliminaries 2: Linear Programming	
4	Sep 3	Th	Mathematical Preliminaries 3: Nonlinear Programming	PS1
5	Sep 8	Tu	Choice, Preferences, and Utility 1: Choice Behavior	
6	Sep 10	Th	Choice, Preferences, and Utility 2: Utility Representations	PS2
7	Sep 15	Tu	Consumer Theory 1: Walrasian (Marshallian) Demand	
8	Sep 17	Th	Consumer Theory 2: Walrasian Demand (cont.); Hicksian Demand	PS3
9	Sep 22	Tu	Consumer Theory 3: The Testable Content of Demand	
10	Sep 24	Th	Consumer Theory 4: Welfare Analysis	PS4
11	Sep 29	Tu	Choice Under Uncertainty 1: Expected Utility	
12	Oct 1	Th	Choice Under Uncertainty 2: Expected Utility (cont.)	PS5
13	Oct 6	Tu	Choice Under Uncertainty 3: Expected Utility and Monetary Risk	
14	Oct 8	Th	Theory of Production 1	PS6
15	Oct 13	Tu	Theory of Production 2	
16	Oct 15	Th	Midterm Exam	Midterm
—	Oct 20	Tu	Fall Break	
—	Oct 22	Th	Fall Break	
17	Oct 27	Tu	General Equilibrium 1: Discrete Exchange Economies and the Core	
18	Oct 29	Th	General Equilibrium 2: The Edgeworth Box and Walrasian Equilibrium	
19	Nov 3	Tu	General Equilibrium 3: Walrasian Equilibrium (cont.)	
20	Nov 5	Th	General Equilibrium 4: Production and Robinson Crusoe Economies	PS7
21	Nov 10	Tu	General Equilibrium 5: The Welfare Theorems	
22	Nov 12	Th	General Equilibrium 6: The Welfare Theorems (cont.)	PS8
23	Nov 17	Tu	General Equilibrium 7: Existence of Walrasian Equilibrium	
24	Nov 19	Th	General Equilibrium 8: Uncertainty and Asset Markets	
25	Nov 24	Tu	Social Choice: Preference Aggregation and Arrow's Theorem	PS9
—	Nov 26	Th	Thanksgiving	
26	Dec 1	Tu	Matching Markets 1: Markets without Transfers	
27	Dec 3	Th	Matching Markets 2: Markets with Transfers	
28	Dec 8	Tu	Catch Up / Course Wrap Up	PS10
—	Dec 14	Mo	Final Exam	Final

10. Reading List

You are expected to read essential readings. Required readings from textbooks (Mas-Colell, Whinston, and Green; Jehle and Reny; or Kreps) are close substitutes; plan to read one per lecture. Classic and supplemental readings are optional, but some lecture content draws upon these sources.

Key

- *essential reading* — something you must read, period.
- *required reading* — something you should read to appreciate the lecture.
- *classic reading* — classic books or important papers; read if you're keen.
- *supplemental reading* — consult for more information, background, or interest.

[1] August 25 / Introduction / Mathematical Preliminaries 0.

- Gale, D., and L. S. Shapley. 1962. College Admissions and the Stability of Marriage. *American Mathematical Monthly* 69(1):9–15.
- Varian, H. R. 1993. What Use is Economic Theory? Department of Economics, University of Michigan Working Paper 93-14.
<<https://deepblue.lib.umich.edu/handle/2027.42/101038>>

[2] August 27 / Mathematical Preliminaries 1: Definitions & Essentials.

- Mas-Colell, Whinston, and Green, Appendices M.A–M.H, M.J.
- Jehle and Reny, Appendices A1, A2.1–A2.2.
- Kreps, Appendices 1–4.
- Chiang, A. C., and K. Wainwright. 2005. *Fundamental Methods of Mathematical Economics*. New York: McGraw-Hill.
- Simon, C. P., and L. Blume. 1994. *Mathematics for Economists*. New York: W. W. Norton & Company.

[3] September 1 / Mathematical Preliminaries 2: Linear Programming.

- Dantzig, G. B. 1963. *Linear Programming and Extensions*. Princeton: Princeton University Press.

- Dorfman, R., P. A. Samuelson, and R. M. Solow. 1958. *Linear Programming and Economic Analysis*. New York: McGraw-Hill. Chapters 1–3.
- Lancaster, K. 1968. *Mathematical Economics*. New York: Macmillan. Chapter 3.

[4] **September 3** / Mathematical Preliminaries 3: Nonlinear Programming.

- Mas-Colell, Whinston, and Green, Appendix M.K.
- Jehle and Reny, Appendix A2.3.
- Kreps, Appendix 5.
- Lancaster, K. 1968. *Mathematical Economics*. New York: Macmillan. Chapters 4–5.

[5] **September 8** / Choice, Preferences, and Utility 1: Choice Behavior.

- Mas-Colell, Whinston, and Green, Chapter 1.
- Kreps, 1.1–1.4, 1.7–1.8.
- Kreps, D. M. 1988. *Notes on the Theory of Choice*. Boulder: Westview Press. Chapters 1–2.

[6] **September 10** / Choice, Preferences, and Utility 2: Utility Representations.

- Mas-Colell, Whinston, and Green, 3.A–3.C.
- Jehle and Reny, 1.1–1.2.
- Kreps, Chapter 2.
- Kreps, D. M. 1988. *Notes on the Theory of Choice*. Boulder: Westview Press. Chapter 3.

[7] **September 15** / Consumer Theory 1: Walrasian (Marshallian) Demand.

- Mas-Colell, Whinston, and Green, 3.D.
- Jehle and Reny 1.3–1.4.
- Kreps, Chapter 3.
- Deaton and Muellbauer, 2.3.
- Rubinstein, Lecture 4.

[8] **September 17** / Consumer Theory 2: Walrasian Demand (cont.); Hicksian Demand.

- Mas-Colell, Whinston, and Green, 3.E–3.G.
- Jehle and Reny, 1.4–1.5.
- Kreps, 4.3, 10.1–10.4, 10.8, 11.1–11.4.
- Deaton and Muellbauer, 2.3–2.5.

[9] **September 22** / Consumer Theory 3: The Testable Content of Demand.

- Mas-Colell, Whinston, and Green, 2.F & 3.J.
- Jehle and Reny, 2.3.
- Kreps, 4.1–4.2.
- Afriat, S. N. 1967. The Construction of Utility Functions from Expenditure Data. *International Economic Review* 8(1):67–77.
- Deaton and Muellbauer, 2.6.
- Rubinstein, Lectures 3 & 5.

[10] **September 24** / Consumer Theory 4: Welfare Analysis.

- Mas-Colell, Whinston, and Green, 3.I.
- Jehle and Reny, 4.3.
- Kreps, 12.2.
- Deaton and Muellbauer, 7.4.
- Hausman, J. 1981. Exact Consumer's Surplus and Deadweight Loss. *American Economic Review* 71(4):662–676.

[11] **September 29** / Choice Under Uncertainty 1: Expected Utility.

- Mas-Colell, Whinston, and Green, 6.A–6.B.
- Jehle and Reny, 2.4.
- Kreps, 5.1.
- Machina, M. J. 1987. Choice Under Uncertainty: Problems Solved and Unsolved. *Journal of Economic Perspectives* 1(1):121–154.

- Von Neumann, J., and O. Morgenstern. 1944. *Theory of Games and Economic Behavior*. Princeton: Princeton University Press. Chapter 3 and Appendix.
- Savage, L. J. 1972 [1954]. *The Foundations of Statistics*. Second Revised Edition. New York: Dover.
- Anscombe, F., and R. Aumann. 1963. A Definition of Subjective Probability. *Annals of Mathematical Statistics* 34(1):199–205.
- Allais, M. 1953. Le Comportement de l'Homme Rationnel devant le Risque: Critique des Postulats et Axiomes de l'École Américaine. *Econometrica* 21(4):503–546.
- Ellsberg, D. 1961. Risk, Ambiguity, and the Savage Axioms. *Quarterly Journal of Economics* 75(4):643–669.
- Fishburn, P. C. 1970. *Utility Theory for Decision Making*. New York: John Wiley & Sons.
- Kreps, D. M. 1988. *Notes on the Theory of Choice*. Boulder: Westview Press. Chapters 4–5.
- Rubinstein, Lectures 7 & 8.

[12] **October 1** / Choice Under Uncertainty 2: Expected Utility (cont.).

[13] **October 6** / Choice Under Uncertainty 3: Expected Utility and Monetary Risk.

- Mas-Colell, Whinston, and Green, 6.C–6.D.
- Jehle and Reny, 2.4.3.
- Kreps, Chapter 6.

[14] **October 8** / Theory of Production 1.

- Mas-Colell, Whinston, and Green, 5.A–5.C.
- Jehle and Reny, 3.1–3.2.

[15] **October 13** / Theory of Production 2.

- Mas-Colell, Whinston, and Green, 5.D.
- Jehle and Reny, 3.3–3.5.
- Kreps, 9.1–9.3.

[16] **October 15** / Midterm Exam.

October 20 / Fall Break / No Lecture.

October 22 / Fall Break / No Lecture.

[17] **October 27** / General Equilibrium 1: Discrete Exchange Economies and the Core.

- Shapley, L. S., and H. Scarf. 1974. On Cores and Indivisibility. *Journal of Mathematical Economics* 1(1):23–37.

[18] **October 29** / General Equilibrium 2: The Edgeworth Box and Walrasian Equilibrium.

- Mas-Colell, Whinston, and Green, 15.A–15.B.
- Jehle and Reny, 5.1.
- Kreps, 14.1–14.3.
- Humphrey, T. M. 1996. The Early History of the Box Diagram. *Economic Quarterly* 82(1):37–75.

[19] **November 3** / General Equilibrium 3: Walrasian Equilibrium (cont.).

[20] **November 5** / General Equilibrium 4: Production and Robinson Crusoe Economies.

- Mas-Colell, Whinston, and Green, 15.C.
- Jehle and Reny, 5.3.
- Defoe, D. 1719. *Robinson Crusoe*.

[21] **November 10** / General Equilibrium 5: The Welfare Theorems.

- Mas-Colell, Whinston, and Green, 15.B, 16.A–16.C.
- Jehle and Reny, 5.2.
- Kreps, 15.1–15.3.

[22] **November 12** / General Equilibrium 6: The Welfare Theorems (cont.).

[23] **November 17** / General Equilibrium 7: Existence of Walrasian Equilibrium.

- Mas-Colell, Whinston, and Green, 17.A–17.C.

- Jehle and Reny, 5.1–5.2.
- Kreps, 14.4.
- McKenzie, L. W. 1954. On Equilibrium in Graham’s Model of World Trade and Other Competitive Systems. *Econometrica* 22(2):147–61.
- Arrow, K. J., and G. Debreu. 1954. Existence of an Equilibrium for a Competitive Economy. *Econometrica* 22(3):265–290.
- Debreu, G. 1959. *Theory of Value*. New Haven: Yale University Press.
- Arrow, K. J., and F. H. Hahn. 1971. *General Competitive Analysis*. San Francisco: Holden-Day.
- Weintraub, E. R. 2011. Retrospectives: Lionel W. McKenzie and the Proof of the Existence of a Competitive Equilibrium. *Journal of Economic Perspectives* 25(2):199–215.

[24] **November 19** / General Equilibrium 8: Uncertainty and Asset Markets.

- Mas-Colell, Whinston, and Green, 19.A–19.E.
- Jehle and Reny, 5.4.
- Kreps, 16.1–16.3.

[25] **November 24** / Social Choice: Preference Aggregation and Arrow’s Theorem.

- Mas-Colell, Whinston, and Green, 21.A–21.C
- Jehle and Reny, 6.1–6.2.
- Kreps, 8.1.
- Arrow, K. J. 1950. A Difficulty in the Concept of Social Welfare. *Journal of Political Economy* 58(4):328–346.
- Deaton and Muellbauer, 9.1
- Rubinstein, Lecture 9.

November 26 / Thanksgiving Holiday / No Lecture.

[26] **December 1** / Matching Markets 1: Markets without Transfers.

- Gale, D., and L. S. Shapley. 1962. College Admissions and the Stability of Marriage. *American Mathematical Monthly* 69(1):9–15.
- Roth, A. E., and M. A. O. Sotomayor. 1990. *Two-Sided Matching: A Study of Game-Theoretic Modeling and Analysis*. Cambridge: Cambridge University Press.
- Roth, A. E. 2015. *Who Gets What—And Why: The New Economics of Matchmaking and Market Design*. New York: Houghton Mifflin Harcourt.
- Kreps, D. M. 2023. *Microeconomic Foundations II: Imperfect Competition, Information, and Strategic Interaction*. Princeton: Princeton University Press. Chapter 25.

[27] **December 3** / Matching Markets 2: Markets with Transfers.

- Shapley, L. S., and M. Shubik. 1971. The Assignment Game I: The Core. *International Journal of Game Theory* 1(1):111–130.
- Kelso, A. S., Jr., and V. P. Crawford. 1982. Job Matching, Coalition Formation, and Gross Substitutes. *Econometrica* 50(6):1483–1504.

[28] **December 8** / Catch Up / Course Wrap Up.

December 14 / Final Exam.

- The university registrar has provisionally scheduled the final exam for 19:30–21:30 on December 14, 2026. The exam’s location will be announced when available.