

APPLIED ECONOMICS 8004

Applied Microeconomic Analysis of Social Choice and Welfare

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| Spring 2018 | Instructor: | TA: |
| Lecture: | Jay Coggins | Jose Casco Guerra |
| Ruttan B22, TuTh 3:00–4:15 | 316g Ruttan | 213 Ruttan |
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Course Description.

Much of what you saw in 8001–02 was about the ways in which markets work well, and some of this class will be in the same vein. People are rational optimizing agents, whether maximizing utility while facing competitive markets or when participating in strategic situations. Markets clear. In the first section of this course, covering the theory of general economic equilibrium, that will all still be true.

In the second half of the course, though, we will extend our reach outside the domain where markets are perfect. We'll see that, in fact, market forces don't always produce desirable outcomes. In the presence of public goods, markets fail. When groups of people attempt to make collective decisions, they face significant barriers.

This part of micro can be pretty dismal, I know. But I will be careful to give my views on where one can find more optimism than the various impossibility results would suggest. My goal is to help you see how to reconcile the competing demands: for optimality and for realism; for fine theoretical consistency and for practical applicability.

Books and other readings.

The course will draw, where appropriate, on Mas-Colell, Whinston, and Green. You will also want to spend some time with a handful of articles and book chapters. The readings not in MWG will be found at the University library's online reserve or will be emailed to you. I will also provide my own lecture notes, which will be the main source for the course. You will be able to succeed in the course by relying entirely on my notes and Mas-Colell.

How it all fits together

We start with the treatment of general equilibrium. Leaving aside equilibrium under uncertainty and over time, this material spans five chapters and more than 170 pages in Mas-Colell. We cannot possibly do it justice in three or four weeks; there is no choice but to trim ruthlessly. My goal is to treat a few major results with some care. The big three are the first and second welfare theorems and the equilibrium existence theorem. Most of our work will be with exchange economies. Production will be introduced briefly as we wrap up the section.

The proof of the first welfare theorem is straightforward. Every textbook treats it in the same way. But there are many versions of the second welfare theorem and the existence theorem. I

have found my favorites and they are the versions that we will study carefully. Mas-Colell is good background reading on this material.

The rest of the term will include two topics, each of which could easily occupy an entire semester course: public goods; and social choice. Here again the only goal is to show you some of the most fundamental results. We'll see that things don't work quite as we might hope, or at least market forces and decentralized decision-making are not likely to achieve desirable outcomes. I will emphasize the interconnections between them, always trying to explain how (or if) they are relevant to policy.

There will be a set of readings for each, but I have tried hard not to burden you with an excessive reading load. Students will be expected to have read the required readings before each class. I will do a fair bit of straight lecturing, but I will encourage discussion as much as I can. Throughout the term, active participation by all will be expected. Note that, in close cases, your participation in discussion will be used in determining your final grade for the course.

Assigned Workload

The assigned workload will include one final exam, held on the last day of class, and a series of problem-oriented homework sets, probably either five or six in total. Homeworks will be due at class time on the due date. Feel free to work together on home problems, but be sure to turn in a solution set that is your own.

Grading

Your semester grade will be determined according to the following weights:

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| Homeworks | 40 percent |
| Final Exam | 55 percent |
| Class Participation | 5 percent |

Final grades will be calculated on a curve, using these weights. Plus and minus grades will be used, with scoring based on the following table:

| Weighted Average | Final Grade | Weighted Average | Final Grade |
|---------------------|----------------|---------------------|----------------|
| 93–100 | A | 83–86.9 | B |
| 90–92.9 | A– | 80–82.9 | B– |
| 87–89.9 | B+ | –79.9 | C |

University Grading Standards

I will follow the *University Grading Standards*, found on the web at policy.umn.edu/education/gradingtranscripts.

Final Exam

The exam will be given on May 4, the last scheduled day of class. We will not have a discussion session that day.

COURSE SCHEDULE

| Date | Topic | Required Readings |
|--------|--------------------------------------|-------------------------------|
| Mar 20 | General equilibrium: introduction | Lecture notes; MWG ch. 15 |
| Mar 22 | GE: Pareto optimality | Lecture notes; MWG ch. 16 |
| Mar 27 | GE: equilibrium, 1st welfare theorem | Lecture notes; MWG ch. 16 |
| Mar 29 | GE: 2nd welfare thrm | Lecture notes; MWG ch. 16 |
| Apr 3 | GE: existence of equilibrium | Lecture notes; MWG ch. 17 |
| Apr 5 | GE: limits to redistribution | Lecture notes; MWG ch. 18.D |
| Apr 10 | GE: production economies | Lecture notes |
| Apr 12 | Public goods: introduction | Bergstrom ch. 4; MWG ch. 11.C |
| Apr 17 | Public goods: BBV | Lecture notes; BBV |
| Apr 19 | Public goods: Clarke-Groves | Bergstrom ch. 11 |
| Apr 24 | Social choice: Arrow's theorem | MWG ch. 21.C; Reny |
| Apr 26 | Social choice: domain restrictions | MWG ch. 21.D |
| May 1 | Social choice: Gibbard-Satterthwaite | Lecture notes; Reny |
| May 3 | Final exam | |

COURSE OUTLINE AND READINGS

March 20. General equilibrium: introduction

1. *Lecture notes
2. *Mas-Colell, Ch. 15

March 22. General equilibrium: Pareto optimality

1. *Lecture notes
2. *Mas-Colell, Ch. 16

March 27. General equilibrium: first welfare theorem

1. *Lecture notes
2. *Mas-Colell, ch. 16

March 29. General equilibrium: second welfare theorem

1. *Lecture notes
2. *Mas-Colell, ch. 16

April 3. General equilibrium: existence

1. *Lecture notes
2. *Mas-Colell, ch. 17

April 5. General equilibrium: limits to redistribution

1. *Lecture notes
2. *Mas-Colell, ch. 18.D

April 10. General equilibrium: production economies

1. *Lecture notes

April 12. Public goods: introduction

1. Bergstrom, Theodore, "Lecture 4: Public Goods and Private Goods," undated lecture notes, UC-Santa Barbara.
2. Samuelson, Paul A., "The Pure Theory of Public Expenditure," *Review of Economics and Statistics*, 36 (1954), 387–89.
3. Mas-Colell, ch. 11.C

April 17. Public goods: BBV

1. *Bergstrom, Theodore, Lawrence Blume, and Hal Varian, “On the Private Provision of Public Goods,” *Journal of Public Economics*, 79 (1986), 25–49.
2. Bergstrom, Theodore, “Lecture 11: Preference Revelation Mechanisms for Public Goods,” undated lecture notes, UC-Santa Barbara.
3. Mas-Colell, ch. 23.C

April 19. Public goods: Clarke-Groves mechanisms

1. *Bergstrom, Theodore, “Lecture 11: Preference Revelation Mechanisms for Public Goods,” undated lecture notes, UC-Santa Barbara.
2. Clarke, Edward H., “Multipart Pricing of Public Goods,” *Public Choice*, 11 (1971), 17–33.
3. Groves, Theodore, “Incentives in Teams,” *Econometrica*, 41 (1973), 617–631.

April 24. Social choice: Arrow’s theorem

1. *Lecture notes
2. *Reny, Philip J., “Arrow’s Theorem and the Gibbard-Satterthwaite Theorem: A Unified Approach,” *Economics Letters*, 70 (2001) 99–105.
3. Mas-Colell, ch. 21.C
4. Geanakoplos, John, “Three Brief Proofs of Arrow’s Impossibility Theorem,” *Economic Theory*, 26 (2005) 211–215.

April 26. Social choice: domain restrictions

1. *Lecture notes
2. Mas-Colell, ch. 21.D

May 1. Social choice: Gibbard-Satterthwaite

1. *Lecture notes
2. Moulin, Hervé, *Axioms of Cooperative Decision Making*, (New York: Cambridge University Press, 1988), pp. 258–263.
3. *Reny, Philip J., “Arrow’s Theorem and the Gibbard-Satterthwaite Theorem: A Unified Approach,” *Economics Letters*, 70 (2001) 99–105.
4. Craven, ch. 5

May 3. Final exam