

## APPLIED ECONOMICS 8004

### Applied Microeconomic Analysis of Social Choice and Welfare

Spring 2016	Instructor:	TA:
Lecture:	Jay Coggins	Jose Casco Guerra
RuttH 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. The web address is [reserves.lib.umn.edu](http://reserves.lib.umn.edu). Log in with your X.500 id and password. I will also provide my own lecture notes, which will be the main source for the course.

#### 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 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:

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](http://policy.umn.edu/education/gradingtranscripts).

## Final Exam

The exam will be given on May 5, the last scheduled day of class. We will not have a discussion session that day.

## COURSE SCHEDULE

Date	Topic	Required Readings
Mar 22	General equilibrium: introduction	Lecture notes; MWG ch. 15
Mar 24	GE: Pareto optimality	Lecture notes; MWG ch. 16
Mar 29	GE: equilibrium, 1st welfare theorem	Lecture notes; MWG ch. 16
Mar 31	GE: 2nd welfare thrm	Lecture notes; MWG ch. 16
Apr 5	GE: existence of equilibrium	Lecture notes; MWG ch. 17
Apr 7	GE: limits to redistribution	Lecture notes; MWG ch. 18.D
Apr 12	GE: production economies	Lecture notes
Apr 14	Public goods: introduction	Bergstrom ch. 4; MWG ch. 11.C
Apr 19	Public goods: BBV	Lecture notes; BBV
Apr 21	Public goods: Clarke-Groves	Bergstrom ch. 11
Apr 26	Social choice: Arrow's theorem	MWG ch. 21.C; Geanakoplos
Apr 28	Social choice: domain restrictions	MWG ch. 21.D
May 3	Social choice: Gibbard-Satterthwaite	Craven ch. 5; Moulin
May 5	<b>Final exam</b>	

## COURSE OUTLINE AND READINGS

### March 22. General equilibrium: introduction

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

### March 24. General equilibrium: Pareto optimality

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

### March 29. General equilibrium: first welfare theorem

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

### March 31. General equilibrium: second welfare theorem

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

### April 5. General equilibrium: existence

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

### April 7. General equilibrium: limits to redistribution

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

### April 12. General equilibrium: production economies

1. \*Lecture notes

### April 14. 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 19. 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 21. 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 26. Social choice: Arrow’s theorem**

1. \*Lecture notes
2. \*Craven, John, *Social Choice: A Framework for Collective Decisions and Individual Judgments*, (New York: Cambridge University Press, 1992), ch. 3.
3. \*Mas-Colell, ch. 21.C
4. Geanakoplos, John, “Three Brief Proofs of Arrow’s Impossibility Theorem,” *Economic Theory*, 26 (2005) 211–215.

### **April 28. Social choice: domain restrictions**

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

### **May 3. 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. Craven, ch. 5

### **May 5. Final exam**