

Syllabus for ECON 509 – Microeconomics III

G. de Clippel

Rice University - Fall 2006

Professor: Geoffroy de Clippel (declippel@rice.edu)

Class meets TTh 9:00-10:15 @ BB 271

Office Hours: TTh 10:30-11:30 @ BB 266B

Teaching Assistant: Jung Sook You (jsyou@rice.edu)

Office Hours: Tuesday 4-5pm in BB237 (cubicle 5)

1. Description

General equilibrium studies the allocation of resources as the result of decentralized exchange, given fixed property rights and the preferences of the agents. Game theory studies the allocation of resources as the result of the agents' actions, given the rules of the game and the preferences of the agents. The analysis is positive. On the contrary, the theory of social choice and part of the theory of cooperative games adopt a normative point of view. They allow to compare the relative performance and fairness of the market and different rules of interaction. They also allow to solve resource allocation problems in situations where the rules are not clearly defined or the decentralized market is not desirable, either because the property rights are not well-defined, or because it is inefficient, due for instance to the lack of competition or the presence of externalities.

The implementation of a collective choice rule is often limited by the impossibility to elicit all the relevant information. A public authority may not be able to know the utility of the agents for a public project, the buyer of a used car may not be able to verify its quality before buying it, and an employer may not be able to monitor the effort exerted by his employees. This raises the question of what is achievable. We will re-think part of the positive and the normative analysis, with this new perspective.

2. Textbook

- H. Moulin, 1988, 'Axioms of Cooperative Decision Making', Cambridge University Press.
- A. Mas-Colell, M. Whinston and J. Green, 1995, 'Microeconomic Theory', Oxford University Press.

3. Grading

1/3 for (six) homework assignments, see section 4 below

1/3 for talks at the end of the semester, see section 5 below

1/3 for the final exam, see section 6 below

(No midterm exam)

4. Homework Assignments

There will be six homework assignments covering the material taught in class. The homework assignments will be graded by the teaching assistant, Jung Sook You. You may contact her to organize a few sessions to answer questions about the material covered in class and the exercises of the past homework assignments.

5. Talk

The **objectives** are the following:

1. Find the most relevant papers in the literature;
2. Have a critical reading of the main results;
3. Place the subject in perspective of the class;
4. Find the questions that remain to be addressed;
5. Present the subject to a well-trained audience that has no knowledge of the subject;
6. Active participation at every talk.

Each student must have chosen a subject by **Oct 13**. Subjects will be attributed on a **first come first served** basis, if no other solution is available. You may inform me of your favorite subject by e-mail, at the end of the class, or during my office hours.

The talks will be given during the last two weeks of classes (i.e. between Nov 27 and Dec 8). The students will be allocated at random over the available slots.

Each student must meet me **at most two weeks before his/her presentation** to show his/her progress on the subject. Additional meetings may be arranged if needed.

Each student has **at most one hour** to present his/her subject.

Here is a list of potential subjects. Feel free to propose additional topics.

1. Nash Program;
2. Inequality Indices;
3. Core under Asymmetric Information;
4. Matching;
5. Envy-Freeness;
6. Other Solutions to Cooperative Games: Bargaining Set, Stable Sets, Nucleolus;
7. Value of Information;
8. Epistemology, agree to disagree and the No-Trade Theorem;
9. Power Indices;
10. Other Justifications of Market Equilibria: market games, equivalence with the Shapley value, marginal production principle.

6. Final Exam

Rules:

- 1) The exam is a take-home exam.
- 2) I will e-mail you the questions on Friday Dec 8 at 9am. If you do not receive them, you have the responsibility to contact me as soon as possible: clippel@rice.edu, 713-348-2129, or pass by my office (BB 266B).
- 3) The exam lasts four hours, with no interruption.
- 4) The exam is individual. You are not allowed to contact anybody else concerning the exam.
- 5) You may consult your own handwritten notes (class and exercises), and the two reference books during the exam. These are the only sources you may consult: no other books or papers, and no internet.
- 6) The exam is due Wednesday Dec 13 at 4pm. There will be no extension of the deadline. You may send me your answers by e-mail or give them to me personally. I will send you a confirmation if you send me your answers by e-mail.

Content:

The exam will consist of exercises about the material we covered in class and as specified in the next section.

7. Plan of the Class and References (subject to changes)

A) Social Choice/Welfare Economics

A.1 Social Welfare Orderings (**Moulin, Chapters 1 and 2**)

- A.1.1 Basic Definitions
- A.1.2 Representability
- A.1.3 Axiomatic Characterizations

A.2 Axiomatic Bargaining (**Moulin, Chapter 3**)

- A.2.1 Basic Definitions
- A.2.2 Axiomatic Characterizations

A.3 Voting Rules (**Moulin, Chapter 9**)

- A.3.1 Basic Definitions
- A.3.2 Only Two Candidates
- A.3.3 More than Two Candidates
- A.3.4 A Characterization of Scoring Rules
- A.3.5 Sequential Majority Comparisons

A.4 Arrow's Impossibility Result (**Moulin, Section 11.3**)

- A.4.1 Social Welfare Orderings
- A.4.2 Social Choice Functions

B) Cooperative Games (**Moulin, part of Chapter 5; MWG, Section 18.B**)

- B.1 The Shapley Value
- B.2 The Core
- B.3 Core Convergence

C) Asymmetric Information

C.1 General Equilibrium

- C.1.1 Adverse Selection (**MWG, Section 13.B**)
- C.1.2 Information Revealed by Types (**MWG, Section 19.H**)

C.2 Normal-Form Bayesian Games

C.3 Mechanism Design (**MWG, Chapter 23**)

- C.3.1 Dominant Strategy Implementation
- C.3.2 Bayesian Implementation
- C.3.3 Bayesian Incentive Compatibility with Linear Utilities
- C.3.4 Revenue Equivalence for Auctions
- C.3.5 Participation Constraints
- C.3.6 Optimal Bayesian Mechanisms
- C.3.7 Principal-Agent Relationship
- C.3.8 Optimal Auction

C.4 Extensive-Form Bayesian Games

- C.4.1 Definitions
- C.4.2 Job Market Signaling (**MWG, Section 13.C**)
- C.4.3 Cheap Talk

8. Disability-Related Accommodations

If you have a documented disability that will impact your work in class, please contact me to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Ley Student Center.