

Economics 719 (A1) – Spring 2005
Advanced Topics in the Economics of Information

Zvika Neeman

Lectures: M, W, 2:00-3:30, SSW 546

Office Hours: W 3:30-5:00, F 10:30-12:00, or by appointment;

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Course Overview

The course will be devoted to the theory of *mechanism design*, broadly defined. Topics to be covered include: social choice and in particular Arrow's and Gibbard-Satterthwaite's impossibility theorems, implementation, Vickrey-Clark-Groves mechanisms and their extensions, optimal mechanisms under budget balance and voluntary participation constraints, and auction theory. The course is part of the field sequence in microeconomic theory.

Requirements for Credit

1. **75 minute class presentation** (20%). The papers to be presented will be assigned by me in consultation with each individual student. Papers will comprise of recently published or yet unpublished papers that represent the "frontier of knowledge" in the field of information economics. The idea is to give a critical presentation of the main ideas in the papers in a mathematically rigorous, but otherwise as simple as possible, form.
2. **A brief research proposal (2-3 pages long) that should be submitted by the last class (April ??, 2005)** (20%). The proposal should describe an idea that, in your opinion, can be expanded into a worthwhile paper. The topic of the proposal has to fall within the subjects of interest of this course, broadly defined. The purpose of this requirement is to encourage you to find interesting subjects that can later develop into publishable research papers and chapters of your dissertation.
3. **Problem sets** (10%). Four or five problem sets will be distributed throughout the course.
4. **Final exam** (50%).

Course Materials

The material for this class (syllabus, lecture notes, readings, and announcements) will be posted on Course Info. In order to access the course web page you can go to http://courseinfo.bu.edu/courses/04fallcasec719_a1. You will be asked to login. Use your BU username and Kerberos password. You can also access the web page directly through Student Link (simply click the course button).

Course Outline

Part 1. Social Choice (weeks 1-3)

Arrow's and Gibbard-Satterthwaite impossibility, single peaked preferences.

- Moulin (1988) *Axioms of Cooperative Decision Making*, ch. 10-11.
- Geanakoplos (2001) “Three brief proofs of Arrow's impossibility theorem,” Yale U.
- Reny (2001) “Arrow's Theorem and the Gibbard-Satterthwaite Theorem: A Unified Approach” *Economics Letters*, pp. 99-105.

Part 2. Implementation (weeks 4-6)

Nash, dominant strategy, and subgame perfect implementation.

- Osborne and Rubinstein (1994) *A Course in Game Theory*, ch. 10.
- Chung and Ely (2003) “Implementation with Near-Complete Information,” *Econometrica* to appear.

Part 3. Mechanism Design (weeks 7-9)

The revelation principle, Vickrey-Clarke-Groves mechanisms, Arrow-d'Aspremont-Gerard-Varet mechanisms, Myerson-Satterthwaite impossibility.

- Fudenberg and Tirole (1991) *Game Theory*, ch. 7.
- Osborne and Rubinstein (1990) *Bargaining and Markets*, ch. 5.6.
- Bergemann and Morris (2003) “Robust mechanism Design,” Yale U.
- Jackson and Sonnenchein (2003) “The linking of collective Decisions and efficiency,” Caltech.
- McAfee (2003) “Coarse matching,” *Econometrica*.

Part 4. Auctions (weeks 10-14)

Revenue equivalence, affiliation, and the winner's curse.

- Krishna (2002) *Auction Theory*.
- Milgrom (2004) *Putting Auction Theory to Work*.
- Holzman et al. (2004) “Combinatorial auctions,” *Games and Economic Behavior*.
- Fibich et al. (2004) “Asymptotic Analysis of Large Auctions,” Tel Aviv University.