Advanced Microeconomic Theory:
Mechanism Design and Information

Economics 521b

Spring 2012

Time and Location: M., W., 9:00-10:20, 28 Hillhouse, Room 106.

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Program. This course covers selected topics in the economics of information and uncertainty. The theme of the course this year is "Mechanism Design and Information". The theory of mechanism design as laid out in the seminal contributions of Vickrey (1961) and Hurwicz (1972) analyzes the performance of various institutions in an economy where information is dispersed amongst participating agents. The key underlying idea is that information is similar to other economic goods in the sense that the agents have autonomy over the decisions regarding their information. How information is used depends on the mechanism in place.

The first generation of (positive) results for mechanism design in Clarke (1971), Groves (1973), Green and Laffont (1977) and D’Aspremont and Gerard-Varet (1979) characterized surplus maximizing mechanisms within private values economies. The second step towards a general theory resulted from a change in focus. Rather than start with surplus maximization as the objective, the work of Myerson (1979), Myerson (1981) and Myerson and Satterthwaite (1983) on revenue maximizing mechanisms started with a characterization of all implementable allocation rules. This opened up the field for a large number of applications ranging from optimal auctions and bilateral trade to regulation and negotiations.

Perhaps surprisingly, almost all of the theory and most of the applications are set in a completely static economic model. The available information comes in
the form of an initial endowment and it is collected from the agents in a static revelation game. Furthermore, the allocation is decided once and for all.\footnote{The relatively recent literatures on multi-object auctions and auctions with resale are notable exceptions to this.} If information on the potential uses of a resource arrives over time, then it is quite likely that any optimal allocation mechanism also reallocates the resource over time.

The objective of this course is twofold: First, it is meant to provide an introduction into the main themes and techniques of mechanism design. Second, it is meant to illustrate the central insights of the theoretical work in the context of important economic applications.

Concurrently with this course, there is second economic theory course taught this term, Econ 531b, which takes a decidedly more dynamic perspective and which complements and generalizes many of the present, often static, insight, to dynamic environments. All students are encouraged to at least audit both courses simultaneously as there will be nonnegligible and positive externalities.

**Course requirements.** This course has four basic requirements. They are: (i) reading the assigned papers before the presentation in class, (ii) solving the problem sets, (iii) presenting one or two research paper and (iv) writing a term paper. The assignments will be given weekly or biweekly. Class participation, assignments, and the term paper will jointly determine the final grade.

**Required texts.** There is no textbook for this course, however the following books should be in the library of every (micro-)economist: Mas-Collel, Whinston, and Green (1995), Fudenberg and Tirole (1991), Myerson (1991) and Osborne and Rubinstein (1994). Selected sections in these books will often constitute background reading. The reading list below will be updated and augmented as the course proceeds and new material arrives.
Weekly Schedule

1. 1/14 - 1/16 (JV): Auction Theory: Revelation Principle and Revenue Equivalence

2. 1/21 - 1/23 (JV): Optimal Auctions and Interdependent Values, Information Aggregation

3. 1/28 - 1/30 (DB): Dominant and Bayesian Implementation: Necessary and Sufficient Conditions
   2. Rochet (1987)
   3. Roberts (1979)

4. 2/4 - 2/6 (DB): Multidimensional Incentive Compatibility
   2. Hart and Reny (2011b), Hart and Reny (2011a), Hart and Nisan (2011a), Hart and Nisan (2011b), and the survey slides Hart (????)

5. 2/11 - 2/13 (DB): Impossibility Results (and Eliciting Beliefs and Scoring Rules):
   2. Savage (1954),

6. 2/18 - 2/20 (DB): The Value of Information in Strategic Settings: Theory
   1. Blackwell (1951), Blackwell (1953)

7. 2/25 - 2/27 (DB): The Value of Information in Strategic Settings: Applications
   1. Kamenica and Gentzkow (2011)
   2. Rayo and Segal (2010)
   3. Caplin and Martin (2011)

8. 3/4 - 3/6 (DB): Incentives and Disclosure of Information
   2. Bergemann and Wambach (2009)

   1. Bergemann and Bonatti (2011), Bergemann and Bonatti (2013)

10. 4/1 - 4/3 (JV): Dynamic Moral Hazard
    1. Bergemann and Hege (2005), Mason and Valimaki (2012),

11. 4/8 - 4/10 (JV): Dynamic Adverse Selection

12. 4/15 - 4/17 (JV): Dynamic Signalling
References


——— (2013): “Selling Cookies,” Discussion paper, Yale University and MIT.


Hart, S. (???:) “Two Good to Be True,”


——— (2011): “Garbling of Signals and Outcome Equivalence,” Discussion paper, Tel Aviv University, University of Paris and Northwestern University.


1.
Bayesian Games

Information / Knowledge / Uncertainty

There are two important contributions in the literature.
1. Harsanyi (1967-68) Models without common knowledge are transformed into games of incomplete information, and then into imperfect information games. The idea is to introduce a notion of type which represents Advanced Microeconomic Theory remains a rigorous, up-to-date standard in microeconomics, giving all the core mathematics and modern theory the advanced student must master. Long known for careful development of complex theory, together with clear, patient explanation, this student-friendly text, with its efficient theorem-proof organization, and many examples and exercises, is uniquely effective in advanced courses. New in this edition. General equilibrium with contingent commodities. Expanded treatment of social choice, with a simplified proof of Arrow’s theorem and complete, step-by-step d Advanced Microeconomic Theory. An Intuitive Approach with Examples. by Muñoz-García.

Appendix: More General Policy Mechanisms (pg. 718). Exercises (pg. This indicates that information on file with an issuing credit card company does not match what is entered. We typically see this occur with individuals who have moved recently or individuals using a school address instead of a home address. Our advice is to contact your financial institution and verify the correct billing information. You may want to ask about any failed transactions and inquire as to the status of those funds. Please submit a ticket if you think that this is not the issue. Prentice Hall, 2011. - 672 p. - ISBN 10: 0273731912 (3rd Edition). The classic text in advanced microeconomic theory, revised and expanded. “Advanced Microeconomic Theory” remains a rigorous, up-to-date standard in microeconomics, giving all the core mathematics and modern theory the advanced student must master. Long known for careful development of complex theory, together with clear, patient explanation, this student-friendly text, with its efficient theorem-proof organization, and many examples and exercises, is uniquely effective in advanced courses. Advanced Microeconomic Theory. Lecture Notes. Sérgio O. Parreiras. Economics Department, UNC Advanced Microeconomic Theory - Lecture Notes. 283 PagesÂ·2016Â·897 KBÂ·2,492 Downloads. Financial Markets. General Equilibrium with Production. Advanced Microeconomic Theory - Lecture Notes for Microeconomic Theory: ECON 630. 645 PagesÂ·2015Â·4.48 MBÂ·8,119 Downloads. and. Lecture Notes for Microeconomic Theory: ECON 630 Arihant Vector and 3D Geometry Skills in Mathematics for IIT JEE Main Advanced with Sessionwise Theory Exercises Amit M Agarwal. 288 PagesÂ·2018Â·60.49 MBÂ·47,102 Downloads.