

DEPARTMENT OF ECONOMICS  
UNIVERSITY OF TORONTO  
ECO 2102 TOPICS IN MICROECONOMIC THEORY  
FALL 2016

**Instructor:** Rahul Deb

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**Course Times:** Wednesdays from 4 pm to 6 pm

**Lecture Location:** SS1085

### Course Outline

This is a topic course in microeconomic theory oriented to PhD students in economics or management who have completed the first-year core sequence of microeconomic theory. The focus of this course will be mechanism design, contract theory and market design. I will try and explain the underlying technique of a few main papers in each area and then talk about where the literature is heading. The last two weeks will be reserved for student class presentation.

### Reference Texts

- Borghers: An Introduction to the Theory of Mechanism Design.
- Bolton and Dewatripont: Contract Theory.
- Krishna: Auction Theory.
- Roth and Sotomayor: Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis.

### Grading

The main purpose of this course is to help you transit smoothly from taking course work to writing your own research papers. Students who registered in this course are required to write 2 referee reports, give a class presentation, and write a research proposal. The course grade will be decomposed as follows:

- Referee reports (60%, 30% each)
- Class Presentation (40%)

For the referee reports you can choose your own papers or you can pick papers from the list I will provide (mostly recent job market papers). Reports should be typed up and submitted by email. If you choose to pick a paper on your own for the ref report, you need to get approval from me first (to determine whether the paper is appropriate for the class).

The presentation can be on one of the two papers you referee, another paper from the list or a paper of your choosing. As above, if you pick a paper on your own or if you want to present original research in the class presentation, you need my approval in advance. Presentation order will be picked by me using a random number generator.

The referee report should be at least 3 pages with 1.5 line spacing (so pick a paper about which you have something to say). It is very important for you to be able to evaluate the novelty/importance of different topics, which will be critical when you start to choose topics to write your dissertation. In the report, you should pay attention to the following.

- (1) Overall assessment of the paper. Why do you think the paper is (or is not) good? Why is the topic important/interesting? Is the idea creative? What's the most important insight of the paper? What's the main contribution to the literature?
- (2) Detailed critiques about the paper. For example, are the model assumptions sensible? Which assumption is critical? Are the results robust? What are the testable implications? What improvement you can suggest concerning the modeling, analysis, extensions, etc.?

### **Important Dates**

- Ref Report 1 Due: Nov 1, 2016
- Ref Report 2 Due: Dec 5, 2016
- Class Presentation: Nov 23 or Nov 30, 2016

### **Lecture Details (Currently Being Reworked)**

#### 1) Preliminaries: Single Agent Screening

- Mussa, M. and Rosen, S. (1978), "Monopoly and Product Quality," *Journal of Economic Theory*.
- Borgeers Mechanism Design Book Chapter 2.
- Matthews, S. and Moore, J. (1987), "Monopoly Provision of Quality and Warranties: An Exploration in the Theory of Multidimensional Screening," *Econometrica*.

#### 2) Multi-Player Bayesian Mechanisms

- Myerson (1981), "Optimal Auction Design," *Mathematics of Operations Research*.
- Bulow, J. and J. Roberts, (1989), "The Simple Economics of Optimal Auctions," *JPE*.
- Myerson, R. B., and M. A. Satterthwaite (1983): "Efficient Mechanisms for Bilateral Trading," *Journal of Economic Theory*.
- Cramton, P., R. Gibbons, and P. Klemperer (1987): "Dissolving a Partnership Efficiently," *Econometrica*.

#### 3) Correlated Values, Dominant Strategies

- Green and Laffont (1977), "Characterization of Satisfactory Mechanisms for the Revelation of Preferences for Public Goods," *Econometrica*.
- Cremer and McLean (1985), "Optimal Selling Strategies under Uncertainty for a Discriminating Monopolist when Demands are Interdependent," *Econometrica*.
- Cremer and McLean (1988), "Full Extraction of the Surplus in Bayesian and Dominant Strategy Auctions," *Econometrica*.
- Rochet, J. C. (1987), "A Necessary and Sufficient Condition for Rationalizability in a Quasi Linear Context," *Journal of Mathematical Economics*.

## 4) Interdependent Values

- Milgrom, P., and R. Weber (1982), "A Theory of Auctions and Competitive Bidding," *Econometrica*.
- Paul R. Milgrom and Robert J. Weber (1982), "The Value of Information in a Sealed-Bid Auction," *Journal of Mathematical Economics*.
- Richard Engelbrecht-Wiggans, Paul R. Milgrom, Robert J. Weber (1983), "Competitive Bidding and Proprietary Information," *Journal of Mathematical Economics*.

## 5) Multiple Item Auctions

- Milgrom, P. (2000), "Putting Auction Theory to Work: Simultaneous Ascending Auction," *JPE*.
- Ausubel, L. and Milgrom, P. (2002), "Ascending Auctions with Package Bidding," *Frontiers of Theoretical Economics*.
- Ausubel, L. (2004), "An Efficient Ascending-Bid Auction for Multiple Objects," *American Economic Review*.
- Binmore, K. and Klemperer (2002), "The Biggest Auction Ever: the Sale of British 3G Telecom Licenses," *Economic Journal*.

## 6) Dynamic Mechanisms

- Courty and Li (2000), "Sequential Screening," *Review of Economic Studies*.
- Eso and Szentes (2007), "Optimal Information Disclosure in Auctions and the Handicap Auction," *Review of Economic Studies*.
- Bergemann and Valimaki (2010), "Dynamic Pivotal Mechanisms," *Econometrica*.

## 7) Mechanism Design without Transfers: One Sided Matching

- Zhou, L. (1990), "On a Conjecture by Gale About One-Sided Matching Problems," *Journal of Economic Theory*.
- Abdulkadiroglu, A., and Sonmez, T. (1998), "Random Serial Dictatorship and the Core from Random Endowments in House Allocation Problems," *Econometrica*.
- Roth, A.E. (1982), "Incentive Compatibility in a Market with Indivisible Goods," *Economics Letters*.
- Hylland, A. and Zeckhauser, R. (1979), "The Efficient Allocation of Individuals to Positions," *JPE*.
- Bogomolnaia, A. and Moulin, H. (2001), "A New Solution to the Random Assignment Problem," *Journal of Economic Theory*.

## 8) Mechanism Design without Transfers: Two Sided Matching

- Gale, D. and Shapley, L. (1962), "College Admissions and the Stability of Marriage," *American Mathematical Monthly*.
- Roth and Sotomayor (1990), "Two Sided Matching: A Study in Game-Theoretic Modeling and Analysis." Cambridge University Press. Chapters 2-5.

## 9) Moral Hazard

- Holmstrom (1979), "Moral Hazard and Observability," *Bell Journal of Economics*.
- Rogerson (1985), "The First-Order Approach to Principal-Agent Problems," *Econometrica*.

- Mirrlees (1999), "The Theory of Moral Hazard and Unobservable Behavior: Part I," Review of Economic Studies.
- Holmstrom and Milgrom (1987), "Aggregation and Linearity in the Provision of Intertemporal Incentives," *Econometrica*.
- Holmstrom and Milgrom (1991), "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design," *Journal of Law, Economics, and Organization*.

#### 10) Relational Contracting

- Macleod and Malcolmson (1989), "Implicit Contracts, Incentive Compatibility, and Involuntary Unemployment," *Econometrica*.
- Macleod and Malcolmson (1998), "Motivation and Markets," *American Economic Review*.
- Levin (2003), "Relational Incentive Contracts," *American Economic Review*.
- Levin (2002), "Multilateral Contracting and the Employment Relationship," *Quarterly Journal of Economics*.