

**Department of Economics
University of Toronto
Fall 2021**

Eco3202: Topics in Microeconomic Theory

Time: Tuesday 2:00-4:00pm

Location: GE100

Delivery Mode: In-person

Instructor: Xianwen Shi

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Office Hour: by Appointment

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Course Webpage: <https://q.utoronto.ca/>

Description

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 contract theory and related topics. We will first review general models of moral hazard and adverse selection. Then we will review some recent development in contract theory related topics, such as dynamic contracting, strategic communication, and behavioral contracting. The last two weeks will be reserved for student class presentation.

Useful Textbooks and Notes

1. Bolton and Dewatripont (2005), *Contract Theory*, The MIT Press.
2. Milgrom (2004), *Putting Auction Theory to Work*, Oxford University Press.
3. Borghers (2015), *An Introduction to the Theory of Mechanism Design*, Oxford University Press.
4. Spiegler (2011), *Bounded Rationality and Industrial Organization*, Oxford University Press.
5. Lars Stole Notes: <http://faculty.chicagogsb.edu/lars.stole/papers/lectures.pdf>
6. Steve Tadelis Notes: http://faculty.haas.berkeley.edu/stadelis/Econ_206_notes_2006.pdf

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 solve 1 problem set, write 2 referee reports, give a class presentation, and write a research proposal. The course grade will be decomposed as follows:

- One Problem Set (20%)
- Two Referee reports (30%, 15% each)
- Class presentation (20%)
- Research proposal (30%)

I will provide a list of papers (some of them are recent job market papers), from which you should choose two of them to review and one of them to present in class. The paper you present can be

one of the two papers you review. Both referee reports and proposal should be typed up.

The referee report should be 3-4 pages with 1.5 line spacing. 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.?

As for the research proposal, I expect to see a 6-7 pages research note with 1.5 line spacing. The research proposal could be theoretical or empirical, but the topic must be broadly related to the material covered in this course. If it is a theoretical one, it should include motivation, related literature, formal model setup, preliminary results, and testable predictions (if any). If it is an empirical proposal, it should include motivation, related literature, theory model and its prediction, empirical identification strategy, and possible data sources. You shall talk to me about your research ideas as soon as possible.

Problem Set: Due November 2 before class

Referee Report 1: Due November 16 before class

Referee Report 2: Due November 30 before class

Research Proposal: Due December 18 before midnight (11:59pm)

Course Outline (Tentative)

Moral Hazard (about 3 weeks)

Topics: moral hazard model with continuous actions, first order approach, multi-task models, dynamic contracting, robust contracting.

1. Holmstrom (1979), "Moral Hazard and Observability," *Bell Journal of Economics*.
2. Grossman and Hart (1983), "An Analysis of the Principal-Agent Problem," *Econometrica*.
3. *Rogerson (1985), "The First-Order Approach to Principal-Agent Problems," *Econometrica*.
4. Mirrlees (1999), "The Theory of Moral Hazard and Unobservable Behavior: Part I," *ReStud*.
5. *Rene Kirkegaard (2017), "A Unifying Approach to Incentive Compatibility in Moral Hazard Problems," *Theoretical Economics*.
6. Holmstrom. 1982, "Moral hazard in teams," *Bell Journal of Economics* 13: 324-40.
7. *Holmstrom and Milgrom (1991), "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design," *Journal of Law, Economics, & Organization*.
8. *Prendergast (1999), "The Provision of Incentives in Firms," *JEL*, 7-63.
9. *Rogerson (1985), "Repeated Moral Hazard," *Econometrica*.
10. *Holmstrom and Milgrom (1987), "Aggregation and Linearity in the Provision of Intertemporal Incentives," *Econometrica* 55:2, 303-328.
11. Spear and Srivastava (1987), "On Repeated Moral Hazard with Discounting," *ReStud*.
12. *DeMarzo and Sannikov (2006), "Optimal Security Design and Dynamic Capital Structure in a Continuous-Time Agency Model," *Journal of Finance*.
13. Sannikov (2008), "Principal-Agent Model in Continuous Time," *ReStud*.
14. Sylvain Chassang (2013), "Calibrated Incentive Contract," *Econometrica*.

15. *Gabriel Carrol (2015), “Robustness and Linear Contract,” *AER*.
16. *Levin (2003), “Relational Incentive Contract,” *AER*.
17. Malcomson (2013), “Relational Incentive Contract,” Ch 25, *Handbook of Organizational Economics*.

Adverse Selection and Mechanism Design (about 3 weeks)

Topics: Monopolistic screening, optimal auction design, Bayesian and dominant strategy implementation, robust mechanism design, sequential screening, dynamic mechanism design

1. *Myerson (1981), “Optimal Auction Design,” *Mathematics of Operations Research* 6(1), 58-73.
2. *Bulow, J. and J. Roberts, (1989), “The Simple Economics of Optimal Auctions,” *JPE*.
3. Manelli and Vincent (2009), “Bayesian and Dominant Strategy Implementation in the Independent, Private Values Model,” *Econometrica* 78(6), 1905-1939.
4. *Gershkov, Goeree, Kushnir, Moldovanu and Shi (2013), “On the Equivalence of Bayesian and Dominant Strategy Implementation,” *Econometrica* 81(1), 197-220.
5. Cremer and McLean (1985), “Optimal Selling Strategies under Uncertainty for a Discriminating Monopolist when Demands are Interdependent,” *Econometrica* 53, 345-361.
6. *Cremer and McLean (1988), “Full Extraction of the Surplus in Bayesian and Dominant Strategy Auctions,” *Econometrica* 56, 1247-1257.
7. Bergemann and Morris (2005), “Robust Mechanism Design,” *Econometrica*.
8. Songzi Du (2017), “Robust Mechanisms under Common Valuation,” working paper.
9. *Diamond and Dybvig (1983), “Bank Runs, Deposit Insurance, and Liquidity,” *JPE*.
10. *Courty and Li (2000), “Sequential Screening,” *ReStud*.
11. *Eso and Szentes (2007), “Optimal Information Disclosure in Auctions and the Handicap Auction,” *ReStud*.
12. Pavan, Segel and Toikka (2014), “Dynamic Mechanism Design,” *Econometrica*.
13. Bergemann and Valimaki (2010), “Dynamic Pivotal Mechanisms,” *Econometrica*.
14. Gershkov and Moldovanu (2009), “Dynamic Revenue Maximization with Heterogeneous Objects: A Mechanism Design Approach,” *AEJ: Micro*.
15. Bergemann and Valimaki (2019), “Dynamic Mechanism Design: An Introduction,” *JEL*.

Strategic Communication (about 3 weeks)

Topics: Cheap talk, persuasion, disclosure, information design

1. *Crawford and Sobel (1982), “Strategic Information Transmission,” *Econometrica*.
2. Dezsö Szalay (2005), “The Economics of Clear Advice and Extreme Options,” *ReStud*.
3. Goltsman, Horner, Pavlov, and Squintani (2009), “Mediation, Arbitration, and Negotiation,” *JET*.
4. *Joel Sobel (2013), “Giving and Receiving Advice,” in *Advances in Economics and Econometrics*, D. Acemoglu, M. Arellano, and E. Dekel (eds.).
5. Sanford Grossman (1981), “The Role of Warranties and Private Disclosure about Product Quality,” *Journal of Law and Economics*.
6. Paul Milgrom and John Roberts, “Relying on the Information of Interested Parties,” *Rand*.
7. Paul Milgrom (2008), “What the Seller Won’t Tell You: Persuasion and Disclosure in Markets” *Journal of Economic Perspectives*.
8. Luis Rayo and Ilya R. Segal (2010), “Optimal Information Disclosure,” *JPE*.
9. *Emir Kamenica and Matthew Gentzkow (2011), “Bayesian Persuasion,” *AER*.
10. *Kolotilin, Mylovanov, Zapechelnyuk and Li (2017), “Persuasion of a Privately Informed Receiver,” *Econometrica*.

11. *Guo and Shmaya (2017), “The Interval Structure of Optimal Disclosure,” working paper.
12. Bergemann and Pendorfer (2007), “Information Structure in Optimal Auctions,” *JET*.
13. Eso and Szentes (2007), “Optimal Information Disclosure in Auctions and the Handicap Auction,” *ReStud*.
14. *Li and Shi (2017), “Discriminatory Information Disclosure,” *AER*.
15. Bergemann, Bonatti and Smolin (2017), “The Design and Price of Information,” *AER*.
16. Roesler and Szentes (2017), “Buyer-Optimal Learning and Monopoly Pricing,” *AER*.
17. Bergemann and Morris (2019), “Information Design: A Unified Perspective,” *JEL*.
18. Kamenica (2019), “Bayesian Persuasion and Information Design,” *Annual Review of Economics*.

Behavioral Contracting (time permitting)

Topics: contracting with dynamic inconsistent preferences, sampling-based reasoning

1. Ran Spiegler (2011), *Bounded Rationality and Industrial Organization*.
2. *DellaVigna and Malmendier (2004), “Contract Design and Self Control: Theory and Evidence,” *QJE*.
3. *Eliaz and Spiegler (2006), “Contracting with Diversely Naïve Agents,” *ReStud*.
4. *Ran Spiegler (2006), “The Market for Quacks,” *ReStud*.
5. Heidhues and Kőszegi (2008), “Competition and Price Variation when Consumers Are Loss Averse,” *AER*.
6. Heidhues and Kőszegi (2010), “Exploiting Naiveté about Self-Control in the Credit Market,” *AER*.