Economics 208: Games and Information Winter 2014

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Class schedule: TTh 12:30-1:50 p.m. in Econ 300. Watson's office hours: before class sessions, some Mondays 1:00-2:30 p.m., and by appointment.

This is an advanced course in game theory, intended for second year students who are interested in pursuing micro theory research or who want a good theory background to do applied work. The course will cover a combination of standard results and current research topics. The prerequisites are all of the Ph.D. microeconomics core courses in the department. This course counts towards the Microeconomics field.

Course requirements include problem sets and a research proposal. All students should attempt to complete all of exercises in the required problem sets. Students will combine into study groups of three or four and each group will submit its solutions as a single document. All assignments and exams must be submitted by email as a .pdf document; either use TeX or another language / word processor that can handle mathematics.

The research proposal is due at the end of the quarter. It should comprise a review of technical papers in the literature, some new idea or question along with motivation, and your attempt at formulating the model. You should meet with one of the instructors to discuss the topic of the research proposal by the end of the second week. We imagine that five to ten pages would be sufficient to exposit an excellent research proposal.

(The outline for Watson's part of the course appears on the next page.)

Watson's part of the course (Weeks 1-5)

TENTATIVE LIST OF TOPICS:

1. Bargaining and Contractual Equilibrium

Nash (1950)*, Binmore, Rubinstein, and Wolinsky (1986)*, Watson (2013)*

2. Recursive Formulations (rationalizability and repeated games):

(a) <u>Pearce (1984)</u>*, <u>Bernheim (1984)</u>, <u>Battigalli (1997)</u>, <u>Shimoji and Watson (1998)</u>*, <u>Dekel, Fudenberg, and Morris (2007)</u>

(b) <u>Abreu, Pearce, and Stacchetti (1990)</u>*, <u>Rubinstein (1986)</u>*, <u>Abreu (1986)</u>, <u>Abreu (1988)</u>.

3. Relational Contracting and Contractual Equilibrium:

MacLeod and Malcomson (1988), Levin (2003)*, Goldlucke and Kranz (2012)*, Miller and Watson (2013)*.

4. Contract, Renegotiation, and Mechanism Design (settings with complete information): [notes to be distributed]

5. Networks and Contracts:

Watson (2012, 2013, to be distributed), Martimort (2012) or other.

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Galperti's part of the course

Dates: 2/11, 2/13, 2/18, 2/20, 2/25, 2/27, 3/4, 3/6, 3/11, 3/13.

Topics (This list is tentative):

- 1. Review of key results in static mechanism design
 - (a) The Mechanism Design Problem:
 - i. Mas-Collel, A., M. Whinston, and J. Green (1995), *Microeconomic Theory*, Oxford University Press;
 - Milgorm, P. (2004), Putting Auction Theory to Work, Cambridge University Press;
 - iii. Myerson, Roger B. (1981), Optimal auction design, Mathematics of Operations Research, 6.1: 58-73.
 - (b) Monotone Comparative Statics:
 - i. Milgrom, P., and C. Schannon (1994), Monotone Comparative Static, Econometrica, Vol. 62, No. 1, pp. 157-180
 - ii. Topkis, D. M. (1998): Supermodularity and Complementarity, Princeton University Press.
 - (c) Envelope Theorems:
 - i. Milgrom, P., and I. Segal (2002), *Envelope Theorems for Arbitrary Choice Sets*, Econometrica, 70(2), 583.601.
 - (d) Monotonicity and Direct Mechanisms:
 - i. Garcia, D. (2005), Monotonicity in Direct Revelation Mechanisms, Economics Letters, 88(1), 21.26.
 - (e) Deterministic vs Stochastic Mechanisms:
 - i. Strausz, R. (2003), *Deterministic Mechanisms and the Revelation Principle*, Economic Letters 79, 333-337.
 - Strausz, R. (2006), Deterministic versus Stochastic Mechanisms in Principal-Agent Models, Journal of Economic Theory, 127(1), 306.314.
 - (f) Mechanism Design without Revenue Equivalence:

- i. Carbajal, J. C. and J. Ely (2013), *Mechanism Design without Revenue Equivalence*, Journal of Economic Theory.
- 2. Dynamic Mechanism Design:
 - (a) Revelation Principle in Dynamic Settings:
 - Myerson, R. (1986), Multistage Games with Communication, Econometrica, Vol. 54, No. 2, pp. 323-358
 - (b) Examples of Dynamic Models:
 - i. Baron, D. and D. Besanko, (1984), *Regulation and Information in a Continuing Relationship*, Information Economics and Policy, 1 447-470.
 - ii. Courty, P. and H. Li, (2000), Sequential Screening, Review of Economic Studies, 67, 697-717.
 - iii. Battaglini, M. (2005), Long-Term Contracting with Markovian Consumers, American Economic Review, Vol. 95, n.3, pp. 637-658.
 - (c) General Approaches to Dynamic Mechanism Design:
 - i. Pavan, A., Segal, I., and J. Toikka (2013), *Dynamic Mechanism Design: A My*ersonian Approach, Econometrica, forthcoming.
 - Battaglini, M. and R. Lamba (2012), *Optimal Dynamic Contracts*, mimeo Princeton University.
 - (d) Efficiency and Dynamic Mechanisms:
 - i. they, S., and I. Segal (2007), An Efficient Dynamic Mechanism, Econometrica, forthcoming.
 - ii. Bergemann, D., and J. Välimäki (2010), The Dynamic Pivot Mechanism, Econometrica, 78(2), 771-789.
 - (e) Commitment and Renegotiation in Dynamic Mechanism Design:
 - i. Battaglini, M. (2007), *Optimality and Renegotiation in Dynamic Contracting*, Games and Economic Behavior, 60(2), 213-246.
 - Laffont, J.-J. and J. Tirole (1988), The Dynamics of Incentive Contracts, Econometrica, 56(5): 1153-1175.
 - iii. Laffont, J.-J. and J. Tirole (1990), Adverse Selection and Renegotiation in Procurement, Review of Economic Studies, 57: 597-625.
 - iv. Bester, H. and R. Strausz, (2001), Imperfect Commitment and the Revelation Principle: The Single Agent Case, Econometrica, 69(4), 1077-1098.
- 3. Multilateral contracting
 - (a) Common-agency Games:
 - i. Bernheim, B. D. and M. Whinston (1986), *Common Agency*, Econometrica, 54(4): 923-42.

- Bernheim, B. D. and M. Whinston (1986), Menu Auctions, Resource Allocation, and Economic Influence, Quarterly Journal of Economics (101), pp. 1-31.
- iii. Martimort, D. (2006), Multi-contracting Mechanism Design, Econometric Society Monographs, 41, 57.
- (b) Revelation Principle and Delegation Principle in Common-agency Games:
 - i. Peters, M. (2001), Common Agency and the Revelation Principle, Econometrica, 69, 1349-1372.
 - ii. Peters, M. (2004), Negotiations versus take-it-or-leave-it in common agency, Journal of Economic Theory.
 - iii. Martimort, D. and L. Stole, (2002), Revelation and Taxation Principles under Common Agency, Econometrica.
 - iv. Pavan, A. and G. Calzolari (2010), *Truthful Revelation Mechanisms for Simulta*neous Common Agency Games, American Economic Journal: Microeconomics.
- (c) Extensions:
 - i. Prat A. and A. Rustichini, (2003), *Games Played Through Agents*, Econometrica, 71: 989-1026.
 - ii. Segal, I. and M. Whinston (2003), *Robust Predictions for Bilateral Contracting* with Externalities, Econometrica, 71: 757-791.