Syllabus, Ec717a: Contract Theory: Part 1

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Fall 2014, Boston University Department of Economics

This is the first half of a course devoted to contract theory with applications to the economics of organizations. While it is an elective course for the micro theory field, it should be useful for students interested in applications to fields such as industrial organization, public economics and health economics.

This part of the course will focus *only on models of adverse selection or hidden information*: moral hazard will not be covered. We will start by showing how to solve for optimal incentive mechanisms with a single agent in a static setting. Next we consider contexts involving multiple agents in a static setting, thereby covering topics in bargaining, auctions and public goods. This will be followed by dynamic extensions, with applications to durable goods monopoly, multiperiod incentives and relational contracts. Finally, we will consider applications to theories of hierarchies and internal organization of firms, which will cover some recent papers in the field.

The material for all but the last section on hierarchies is covered in a single textbook:

Contract Theory, by Patrick Bolton and Mathias Dewatripoint (BD hereafter), MIT Press, 2005.

Nevertheless you ought to read the key journal articles, which are listed below. Unpublished articles will be posted on the course web-site.

Class: T,Th 11-1230, SSW 413, Sept 2 – Oct 16. I will also schedule additional problem set sessions approximately once every two weeks, and will call on you to work out solutions on the board.

Office Hours: M 2-330pm, W330-5pm (Room 500A, 264 Bay State Road)

Prerequisites: First Year PhD courses in micro (Ec701, 703) or equivalent

Exams and Grading: There will be a midterm exam sometime in late October. The course grade will be based 50% on this midterm. The rest on your performance in the second part of the course to be taught by Professor Newman.

Academic Conduct: You are expected to know and understand the provisions of the CAS Academic Conduct Code. Cases of suspected academic misconduct will be referred to the Deans Office.

Sessions and Readings:

1. Single-Agent Adverse Selection (Sept 2,4): Optimal contracts for a single agent with private information: two types; continuum of types [BD, Ch. 2, esp. Sections 2.3.1 and 2.3.3; D Baron and R Myerson, "Regulating a Monopolist with Unknown Cost," Econometrica 1982.]

2. Multi-Agent Adverse Selection (Sept 9,11,16,18): Implementation concepts; mechanisms for public goods, bilateral trade and auctions [BD, Ch. 7 (esp. Sections 7.2, 7.3); Ch. 7

of Fudenberg and Tirole, *Game Theory*, MIT Press; R. Myerson and M Satterthwaite, "Efficient Mechanisms for Bilateral Trading," Journal of Economic Theory 1983; R Myerson, "Optimal Auction Design," Math of Operations Research 1981]

3. Contract Dynamics (Sept 23, 25, 30): durable good monopoly [BD, Ch. 9 (esp. Sec 9.1.1), J Sobel and I Takahashi, "A Multistage Model of Bargaining," Review of Economic Studies 1983]; relational contracts [J Levin, "Relational Incentive Contracts," American Econ Rev 2003.]

4. Hierarchies and Decentralization (Oct 2,7,9,16): hierarchical incentive contracts and delegation of sub-contracting [N Melumad, D Mookherjee and S Reichelstein, "Hierarchical Decentralization of Incentive Contracts," Rand Journal of Economics 1995]; communication costs and decentralization of production decisions [D Mookherjee and M Tsumagari, "Mechanism Design with Communication Costs," forthcoming, Journal of Political Economy Oct 2014]; supervision and collusion [G Celik, " Mechanism Design with Collusive Supervision," Journal of Economic Theory 2009; D Mookherjee, A Motta and M Tsumagari, "Weak Ex Ante Collusion and Design of Supervisory Institutions," working paper, August 2014]