Teoría de Juegos y Economía de la Información Profesor: Juan Escobar

Spring 2015

This is an advanced course on Game Theory and Economics of Information. The course develops tools to analyze strategic situations in static and dynamic environments under information asymmetries. An important portion of the course will emphasize how information asymmetries shape equilibrium behavior and welfare. Applications to Industrial Organization, Political Economy, Corporate Finance, and Organizational Economics will be discussed.

The course is intended to advanced students with interests in economics and related fields. The course assumes students have some background in game theory (IN701 or IN3202), probability theory, and optimization.

Gian Luca Carniglia (gcarniglia@dim.uchile.cl) is the teaching assistant for this course. I plan to have office hours on Mondays 3pm-5pm. You may also contact me by email at jescobar@dii.uchile.cl.

We will assign 4 homeworks. Homeworks will be graded and discussed in sections. We expect you to write your homeworks on your own, but discussion of problem sets and material covered in lectures is encouraged. The final exam will take place the last day of lectures. Students will also present papers at the beginning of some lectures.

The final grade will be computed as

$$F = 30\%HG + 50\% \text{ exam } + 20\%\text{presentation and participation.}$$

The following textbooks are recommended.

1. Fudenberg and Tirole, Game Theory, 1991
2. Osborne and Rubinstein, A course in Game Theory, 1994
3. Kreps, Microeconomic Theory, A course in Microeconomic Theory, 1990
4. Mas Colell, Whinston, and Green, Microeconomic Theory, 1995
5. Bolton and Dewatripont, Contract Theory, 2005
6. Mailath and Samuelson, Repeated Games and Reputations, 2006

The following is the list of some of the topics covered

1. Repeated and stochastic games (2 weeks)
   - Repeated games with perfect monitoring
   - Punishments and optimal penal codes
   - A folk theorem for games with perfect monitoring (Fudenberg and Maskin 1986)
   - Repeated games with imperfect public monitoring and public strategies (Abreu, Pearce, and Stacchetti 1990)
   - Repeated games with private monitoring (Mailath and Morris 2002)
   - Stochastic games and Markovian behavior
   - Experimental evidence (Dal Bó 2005)
   - Examples: Countercyclical collusion (Rotemberg and Saloner 1986), Multimarket contacts (Bernheim and Whinston 1990), imperfect competition with imperfect public and private monitoring (Green and Porter 1984, Abreu, Pearce, and Stacchetti 1986, Harrington and Skrzypacz 2007, Harrington and Skrzypacz 2011), community enforcement (Kandori 1992, Greif 1993, Camera and Casari 2009), industry dynamics (Maskin and Tirole 1988, Ericson and Pakes 1995)

2. Dynamic games (2 weeks)

   - Representation
   - Beliefs and equilibrium
   - Weak-perfect Bayesian equilibrium, perfect Bayesian equilibrium, sequential equilibrium (Kreps and Wilson 1982)
   - Other refinements: Forward induction, divinity, intuitive criterion
   - Examples: Job market signaling (Spence 1973), Reputation and cooperation in finitely repeated prisoners dilemma (Kreps, Milgrom, Roberts, and Wilson 1982, Fudenberg and Levine 1989), cheap-talk and communication (Crawford and Sobel 1982), the tradeoff between decentralization and control (Dessein 2002), bargaining with incomplete information and the Coase Conjecture (Fudenberg and Tirole 1983, Abreu and Gul 2000, Ausubel and Deneckere 1989), Fads, fashion and cultural change (Bikhchandani, Hirshleifer, and Welch 1992), A theory of conformity (Bernheim 1994)

3. Auctions and mechanism design (2 weeks)

   - The VCG mechanism
   - The mechanism design problem and the revelation principle
   - Revenue equivalence theorem (Myerson 1981)
   - Optimal auctions and the monopoly problem (Bulow 1989)
   - Common value auctions (Milgrom and Weber 1982)
   - Examples: efficient bargaining (Myerson and Satterthwaite 1983), optimal regulation (Baron and Myerson 1982), auctions versus negotiations (Bulow and Klemperer 1994), collusion with incomplete information and price rigidities (Athey, Bagwell, and Sanchirico 2004)

4. Contracts and organizations (2 weeks)

   - Moral hazard with one agent and the first order approach (Hölmstrom 1979, Grossman and Hart 1983, Innes 1990)
   - The multitasking model (Holmstrom and Milgrom 1991)
   - Moral hazard in teams (Holmstrom 1982)
   - Relational contracts (Baker, Gibbons, and Murphy 2002, Levin 2003)

References

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Baker, G., R. Gibbons, and K. Murphy (2002): "Relational Contracts and the Theory of the Firm*," *Quarterly Journal of Economics*, 117(1), 39–84.

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Holmstrom, B. (1982): "Moral Hazard in Teams," *The Bell Journal of Economics*, pp. 324–340.

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