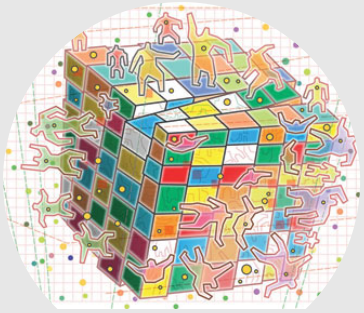

Dynamic Mechanism Design

SS 211a

Instructor Info

Laura Doval

By appointment

BAX 215

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Course Info

Mondays

1-4 pm

BAX 128

Overview

This is a course on dynamic mechanism design. Dynamic should be understood in a broad sense. While the term dynamic mechanism design has been used mainly to refer to the case when private information evolves exogenously over time, the course also covers the more recent literature on endogenous information, hidden action, limited commitment, and revenue management.

Grading Scheme

100%	Research proposal and in class presentation

Important Dates

- November 11: 5 page proposal
- December 9: in-class presentation
- December 13: paper due

Final Project and Presentation

- The project can be theoretical or empirical, but related to the class material.
- The research proposal is at most 5 pages long. It should state the question, its merits, and a literature review. An example highlighting the desired result is ideal, but not necessary.
- In-class presentation: At the end of the class, there will be short presentations of the paper.
- The paper should describe the model and at the very minimum contain a fully solved example of the model.

Reading Material

Books

[1] Patrick Bolton and Mathias Dewatripont. *Contract theory*. MIT press, 2005.
[2] Tilman Börgers. *An introduction to the theory of mechanism design*. Oxford University Press, USA, 2015.
[3] Jean-Jacques Laffont and David Martimort. *The theory of incentives: the principal-agent model*. Princeton university press, 2009.
[4] Jean-Jacques Laffont and Jean Tirole. *A theory of incentives in procurement and regulation*. MIT press, 1993.
[5] Bernard Salanié. *The economics of contracts: a primer*. MIT press, 2005.

Articles

[1] Susan Athey and Ilya Segal. "An efficient dynamic mechanism". In: *Econometrica* 81.6 (2013), pp. 2463–2485.
[2] David P Baron and David Besanko. "Regulation and information in a continuing relationship". In: *Information Economics and policy* 1.3 (1984), pp. 267–302.
[3] Marco Battaglini. "Long-term contracting with Markovian consumers". In: *The American economic review* 95.3 (2005), pp. 637–658.
[4] Marco Battaglini and Rohit Lamba. "Optimal dynamic contracting: the first-order approach and beyond". In: (2015).
[5] Dirk Bergemann and Stephen Morris. "Information design: A unified perspective". In: (2017).
[6] Dirk Bergemann and Juuso Välimäki. "The dynamic pivot mechanism". In: *Econometrica* 78.2 (2010), pp. 771–789.
[7] Simon Board and Andrzej Skrzypacz. "Revenue management with forward-looking buyers". In: *Journal of Political Economy* 124.4 (2016), pp. 1046–1087.
[8] Katalin Bognar, Tilman Börgers, and Moritz Meyer-ter Vehn. "An optimal voting procedure when voting is costly". In: *Journal of Economic Theory* 159 (2015), pp. 1056–1073.
[9] Pascal Courty and Li Hao. "Sequential screening". In: *The Review of Economic Studies* 67.4 (2000), pp. 697–717.
[10] Rahul Deb, Mallesh M Pai, and Maher Said. "Evaluating strategic forecasters". In: *American Economic Review* 108.10 (2018), pp. 3057–3103.
[11] Rahul Deb and Maher Said. "Dynamic screening with limited commitment". In: *Journal of Economic Theory* 159 (2015), pp. 891–928.
[12] Deniz Dizdar, Alex Gershkov, and Benny Moldovanu. "Revenue maximization in the dynamic knapsack problem". In: *Theoretical Economics* 6.2 (2011), pp. 157–184.
[13] Jeffrey C Ely. "Beeps". In: *The American Economic Review* 107.1 (2017), pp. 31–53.
[14] Jeffrey C Ely and Martin Szydlowski. "Moving the Goalposts". In: (2017).
[15] Péter Eső and Balázs Szentes. "Dynamic contracting: An irrelevance theorem". In: *Theoretical Economics* 12.1 (2017), pp. 109–139.
[16] Péter Eső and Balazs Szentes. "Optimal information disclosure in auctions and the handicap auction". In: *The Review of Economic Studies* 74.3 (2007), pp. 705–731.
[17] Simone Galperti. "Commitment, flexibility, and optimal screening of time inconsistency". In: *Econometrica* 83.4 (2015), pp. 1425–1465.
[18] Dino Gerardi and Leeat Yariv. "Information acquisition in committees". In: *Games and Economic Behavior* 62.2 (2008), pp. 436–459.
[19] Alex Gershkov and Benny Moldovanu. "Dynamic revenue maximization with heterogeneous objects: A mechanism design approach". In: *American Economic Journal: Microeconomics* 1.2 (2009), pp. 168–198.
[20] Alex Gershkov and Benny Moldovanu. "Efficient sequential assignment with incomplete information". In: *Games and Economic Behavior* 68.1 (2010), pp. 144–154.
[21] Alex Gershkov and Benny Moldovanu. "Optimal search, learning and implementation". In: *Journal of Economic Theory* 147.3 (2012), pp. 881–909.
[22] Alex Gershkov and Balázs Szentes. "Optimal voting schemes with costly information acquisition". In: *Journal of Economic Theory* 144.1 (2009), pp. 36–68.
[23] Yingni Guo. "Dynamic delegation of experimentation". In: *The American Economic Review* 106.8 (2016), pp. 1969–2008.
[24] Marina Halac and Pierre Yared. "Fiscal rules and discretion under persistent shocks". In: *Econometrica* 82.5 (2014), pp. 1557–1614.
[25] Daniel Krähmer and Roland Strausz. "Ex post information rents in sequential screening". In: *Games and Economic Behavior* 90 (2015), pp. 257–273.
[26] Daniel Krähmer and Roland Strausz. "Optimal procurement contracts with pre-project planning". In: *The Review of Economic Studies* 78.3 (2011), pp. 1015–1041.
[27] Daniel Krähmer and Roland Strausz. "Optimal sales contracts with withdrawal rights". In: *The Review of Economic Studies* 82.2 (2015), pp. 762–790.
[28] Hao Li and Xianwen Shi. "Optimal Discriminatory Disclosure". In: (2017).
[29] Miltiadis Makris, Ludovic Renou, et al. "Information design in multi-stage games". In: (2018).

[30] Paul Milgrom and Ilya Segal. “Envelope theorems for arbitrary choice sets”. In: *Econometrica* 70.2 (2002), pp. 583–601.
[31] Roger B Myerson. “Multistage games with communication”. In: *Econometrica: Journal of the Econometric Society* (1986), pp. 323–358.
[32] Alessandro Pavan, Ilya Segal, and Juuso Toikka. “Dynamic mechanism design: A myersonian approach”. In: *Econometrica* 82.2 (2014), pp. 601–653.
[33] Gleb Romanyuk and Alex Smolin. “Cream Skimming and Information Design in Matching Markets”. In: (2018).

Class Schedule

MODULE 1:Building Blocks

Week 1	Review: Static Mechanism Design	Milgrom, Paul and Segal, I., *Envelope Theorems for Arbitrary Choice Sets*, Econometrica
Week 2	Communication Games	Myerson, R. *Multistage Games with Communication*, Econometrica, 1986 Sugaya, Takuo, and Wolitzky, A., Makris, Miltos, and Renou, L.,

MODULE 2: Transferable Utility

Week 3	Efficiency	Bergemann, Dirk and Valimaki, J. Athey, Susan and Segal, I.
Week 4	Revenue Maximization I	Courty, Pascal and Li, H. Baron and Besanko, *Regulation and information in a continuing relationship* Esö, Peter and Szentes, B., *Optimal information disclosure in auctions and the handicap auction*
Week 5	Revenue Maximization II	Pavan, Alessandro, Segal, I and Toikka,J. Krahmer, Daniel and Strausz, R.
Week 6	Applications	Auctions Matching Hidden Action Self-Control

MODULE 3: Dynamic Mechanism Design without Transfers

Week 7	Sequential Voting	Gershkov, Alex and Szentes, B.
Week 8	Information Design	Ely, Jeff, *Beeps* Ely and Sydlowski, M., *Moving the goalposts*
Week 9	Experts and Delegation	Guo, Yingni Deb, Pai, and Said
Week 10	In-Class Presentations	