

ECON 548: Topics in Economics of Information
Bilkent University
Spring 2021 - Part I
Last updated: March 20, 2021

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Lectures: 15:30-17:20 Tue, 10:30-12:20 Fri (B-103) Office Hours: By appointment

Course Objectives

This course aims to bring the graduate students to the research frontier in economic theory. The course will be situated between an advanced level topics class and a reading group.

In the first half of the class, we will focus on models of communication and information acquisition. We will cover Bayesian persuasion, cheap talk, disclosure of hard evidence, and delegation.

Grading

Presentations: In the first half of the class, you will each make two presentations. The presentation will be about a paper that you choose from the reading list (provided below). A presentation should take 25-30 minutes: basically, read the paper, distill it, and then discuss with us what you think about it. You do not need to cover every detail in the paper or go through every step in the proof; indeed, it is better if you walk us through some toy example. What we need is some core idea on the contribution of the paper to kickstart the discussion, and a sense of what the paper's contribution is. We will schedule the presentations early in the semester so that you will have time to prepare.

Homework: I will also give one assignment, which will take the form of writing a referee report for a recent working paper. You will be assigned different working papers. Writing referee reports is an important academic skill and hopefully this will be an excuse for you to flex some muscles.

Research Essay: At the end of the semester, you will be asked to provide a research essay on a topic of your choice. The research essay may be: a complete theory paper, a proposal with some early results, or a deep literature review which discusses gaps and potential research avenues. Your overall grade of the first half will be determined by:

Participation:	5%
Presentations:	15%
Assignment:	10%

which adds up to 30 %. If you choose to write your research essay on a topic related to the first half of the course, that will be another 40%.

Outline

(The reading list will be updated as we proceed with the semester.)

* denotes: to be presented by students

** denotes: to be assigned as a referee report

1 Introduction: Experiments and the Value of Information

Bengt Holmström's lecture notes from 14.124. <https://ocw.mit.edu/courses/economics/14-124-microeconomic-theory-iv-spring-2017/index.htm>

Aumann, R. and M. Maschler (1995). “Repeated Games with Incomplete Information”, MIT Press

** Kleiner, Andreas, Benny Moldovanu, and Philipp Strack. “Extreme points and majorization: Economic applications.” Available at SSRN (2020).

2 Bayesian Persuasion

2.1 Foundations: Information Design

Bergemann, Dirk, and Stephen Morris. “Information design: A unified perspective.” *Journal of Economic Literature* 57.1 (2019): 44-95.

Mathevet, Laurent, Jacopo Perego, and Ina Taneva. “On information design in games.” *Journal of Political Economy* 128.4 (2020): 1370-1404.

2.2 Theory

Overview

Kamenica, Emir. “Bayesian persuasion and information design.” *Annual Review of Economics* 11 (2019): 249-272.

Basic Model

Kamenica, Emir, and Matthew Gentzkow. “Bayesian persuasion.” *American Economic Review* 101.6 (2011): 2590-2615.

2.3 Extensions to the Basic Model: Bayesian Persuasion with...

Costly experiments

Gentzkow, Matthew, and Emir Kamenica. “Costly persuasion.” *American Economic Review* 104.5 (2014): 457-62.

Restricted signal spaces

Aybas, Yunus C., and Eray Turkel. “Persuasion with Coarse Communication.” arXiv preprint arXiv:1910.13547 (2019).

Dynamic settings

* Ely, Jeffrey C. “Beeps.” *American Economic Review* 107.1 (2017): 31-53.

** Che, Yeon-Koo, Kyungmin Kim, and Konrad Mierendorff. “Keeping the listener engaged: a dynamic model of bayesian persuasion.” arXiv preprint arXiv:2003.07338 (2020).

Multiple senders

Gentzkow, Matthew, and Emir Kamenica. “Competition in persuasion.” *The Review of Economic Studies* 84.1 (2016): 300-322.

Gentzkow, Matthew, and Emir Kamenica. “Bayesian persuasion with multiple senders and rich signal spaces.” *Games and Economic Behavior* 104 (2017): 411-429.

Multiple receivers

* Alonso, Ricardo, and Odilon Camara. "Persuading voters." *American Economic Review* 106.11 (2016): 3590-3605.

Kerman, Toygar, P. Herings, and Dominik Karos. "Persuading Strategic Voters." (2020).

* Bardhi, Arjada, and Yingni Guo. "Modes of persuasion toward unanimous consent." *Theoretical Economics* 13.3 (2018): 1111-1149.

Chan, Jimmy, et al. "Pivotal persuasion." *Journal of Economic Theory* 180 (2019): 178-202.

Arieli, Itai, and Yakov Babichenko. "Private bayesian persuasion." *Journal of Economic Theory* 182 (2019): 185-217.

** Wang, Yun. "Bayesian persuasion with multiple receivers." Available at SSRN 2625399 (2013).

Kolotilin, Anton, et al. "Persuasion of a privately informed receiver." *Econometrica* 85.6 (2017): 1949-1964.

Heterogeneous priors

Alonso, Ricardo, and Odilon Camara. "Bayesian persuasion with heterogeneous priors." *Journal of Economic Theory* 165 (2016): 672-706.

** Laclau, Marie, and Ludovic Renou. "Public persuasion." Working paper (2017).

Gitmez, Arda, and Pooya Molavi. "Media capture: A bayesian persuasion approach." Working paper (2018).

2.4 Applications: Bayesian persuasion and...

Coordination games

* Goldstein, Itay, and Chong Huang. "Bayesian persuasion in coordination games." *American Economic Review* 106.5 (2016): 592-96.

** Inostroza, Nicolas, and Alessandro Pavan. "Persuasion in global games with application to stress testing." Working paper (2018).

Media

Gehlbach, Scott, and Konstantin Sonin. "Government control of the media." *Journal of public Economics* 118 (2014): 163-171.

Networks

** Egorov, Georgy, and Konstantin Sonin. "Persuasion on Networks." NBER Working paper No. w27631 (2020).

Markets

* Bergemann, Dirk, Benjamin Brooks, and Stephen Morris. "The limits of price discrimination." *American Economic Review* 105.3 (2015): 921-57.

Contests

Zhang, Jun, and Junjie Zhou. "Information disclosure in contests: A Bayesian persuasion approach." *The Economic Journal* 126.597 (2016): 2197-2217.

Experiments

** Fréchette, Guillaume R., Alessandro Lizzeri, and Jacopo Perego. “Rules and commitment in communication: An experimental analysis.” Working paper (2020)

3 Cheap Talk

(This part is definitely not a full record of the literature. Cheap talk is a very deep literature – we will only scratch the surface.)

3.1 Theory

Overview

Sobel, Joel. “Giving and receiving advice.” *Advances in economics and econometrics* 1 (2013): 305-341.

Basic Model

Crawford, Vincent P., and Joel Sobel. “Strategic information transmission.” *Econometrica* (1982): 1431-1451.

3.2 Extensions: Cheap Talk where...

Sender’s preferences are unknown

Sobel, Joel. “A theory of credibility.” *The Review of Economic Studies* 52.4 (1985): 557-573.

Morris, Stephen. “Political correctness.” *Journal of Political Economy* 109.2 (2001): 231-265.

Ely, Jeffrey C., and Juuso Valimäki. “Bad reputation.” *The Quarterly Journal of Economics* 118.3 (2003): 785-814.

Sender has partial commitment

Chapter 6.7 of Myerson, R. (1991) “Game Theory”, Harvard University Press

Blume, Andreas, Oliver J. Board, and Kohei Kawamura. “Noisy talk.” *Theoretical Economics* 2.4 (2007): 395-440.

Goltsman, Maria, Johannes Hörner, Gregory Pavlov, and Francesco Squintani. “Mediation, arbitration and negotiation.” *Journal of Economic Theory* 144.4 (2009): 1397-1420.

3.3 Connections: Cheap Talk and Bayesian Persuasion

* Lipnowski, Elliot, and Doron Ravid. “Cheap talk with transparent motives.” *Econometrica* 88.4 (2020): 1631-1660.

* Lipnowski, Elliot, Doron Ravid, and Denis Shishkin. “Persuasion via weak institutions.” Available at SSRN 3168103 (2019).

4 Hard Evidence/Verifiable Disclosure

4.1 Overview

Milgrom, Paul. “What the seller won’t tell you: Persuasion and disclosure in markets.” *Journal of Economic Perspectives* 22.2 (2008): 115-131.

4.2 Basic Models

Milgrom, Paul R. “Good news and bad news: Representation theorems and applications.” *The Bell Journal of Economics* (1981): 380-391.

Grossman, Sanford J. “The informational role of warranties and private disclosure about product quality.” *The Journal of Law and Economics* 24.3 (1981): 461-483.

Milgrom, Paul, and John Roberts. “Relying on the information of interested parties.” *The RAND Journal of Economics* (1986): 18-32.

4.3 Extensions to the Basic Model

To “break” full information revelation...

Dye, Ronald A. “Disclosure of nonproprietary information.” *Journal of accounting research* (1985): 123-145.

Okuno-Fujiwara, Masahiro, Andrew Postlewaite, and Kotaro Suzumura. “Strategic information revelation.” *The Review of Economic Studies* 57.1 (1990): 25-47.

* Dziuda, Wioletta. “Strategic argumentation.” *Journal of Economic Theory* 146.4 (2011): 1362-1397.

Shishkin, Denis. “Evidence Acquisition and Voluntary Disclosure.” Working Paper, 2019.

Alternative preferences by the sender

Seidmann, Daniel J., and Eyal Winter. “Strategic information transmission with verifiable messages.” *Econometrica* (1997): 163-169.

* Wolinsky, Asher. “Information transmission when the sender’s preferences are uncertain.” *Games and Economic Behavior* 42.2 (2003): 319-326.

Multiple senders

Bhattacharya, Sourav, and Arijit Mukherjee. “Strategic information revelation when experts compete to influence.” *The RAND Journal of Economics* 44.3 (2013): 522-544.

Dynamic settings

Honryo, Takakazu. “Dynamic persuasion.” *Journal of Economic Theory* 178 (2018): 36-58.

Multiple receivers

* Fishman, Michael J., and Kathleen M. Hagerty. “Mandatory versus voluntary disclosure in markets with informed and uninformed customers.” *Journal of Law, Economics, and Organization* 19.1 (2003): 45-63.

General formulations

Hart, Sergiu, Ilan Kremer, and Motty Perry. “Evidence games: Truth and commitment.” *American Economic Review* 107.3 (2017): 690-713.

Lipman, Barton L., and Duane J. Seppi. “Robust inference in communication games with partial provability.” *Journal of Economic Theory* 66.2 (1995): 370-405.

Ben-Porath, Elchanan, Eddie Dekel, and Barton L. Lipman. “Mechanisms with evidence: Commitment and robustness.” *Econometrica* 87.2 (2019): 529-566.

* Rappoport, Daniel. “Evidence and skepticism in verifiable disclosure games.” Available at SSRN 2978288 (2020).

Applications

Shin, Hyun Song. “The burden of proof in a game of persuasion.” *Journal of Economic Theory* 64.1 (1994): 253-264.

Song Shin, Hyun. “Disclosures and asset returns.” *Econometrica* 71.1 (2003): 105-133.

Jovanovic, Boyan. “Truthful disclosure of information.” *The Bell Journal of Economics* (1982): 36-44.

Froeb, Luke M., and Bruce H. Kobayashi. “Naive, biased, yet bayesian: Can juries interpret selectively produced evidence?” *The Journal of Law, Economics, and Organization* 12.1 (1996): 257-276.

5 Delegation

(Not a full record of the literature.)

5.1 Theory

Holmström’s PhD Thesis (1977)

Holmström, Bengt. “On The Theory of Delegation” (1980).

Melumad, Nahum D., and Toshiyuki Shibano. “Communication in settings with no transfers.” *The RAND Journal of Economics* (1991): 173-198.

Alonso, Ricardo, and Niko Matouschek. “Optimal delegation.” *The Review of Economic Studies* 75.1 (2008): 259-293.

Delegation where the sender’s preferences are unknown

* Frankel, Alexander. “Aligned delegation.” *American Economic Review* 104.1 (2014): 66-83.

Connections: Delegation and Bayesian Persuasion

* Kolotilin, Anton, and Andriy Zapechelnuk. “Persuasion meets delegation.” arXiv preprint arXiv:1902.02628 (2019).

5.2 Applications

Amador, Manuel, and Kyle Bagwell. “The theory of optimal delegation with an application to tariff caps.” *Econometrica* 81.4 (2013): 1541-1599.

Amador, Manuel, Ivan Werning, and George-Marios Angeletos. “Commitment vs. flexibility.” *Econometrica* 74.2 (2006): 365-396.

Maskin, Eric, and Jean Tirole. “The politician and the judge: Accountability in government.” *American Economic Review* 94.4 (2004): 1034-1054.

Acemoglu, Daron, and Matthew O. Jackson. “Social norms and the enforcement of laws.” *Journal of the European Economic Association* 15.2 (2017): 245-295.