

Strategic Communication and Social Networks

CIDE
Fall 2025

Antonio Jiménez

My email: antonio.jimenez@cide.edu.

My website: www.antoniojimm.org.

Class will meet on: **Tue, 15:00–18:00**.

Office hours: I encourage you to talk among you and to me about the course material. We can talk right after each class. My office hours are **Wed, 13:00–15:00**, but we might schedule meetings on other time slots as well.

Course Description: This is an advanced course that studies (1) models on strategic communication and (2) topics on social and economic networks. The course organizes around a number of lectures on the main models and research-workshop-style presentations by the instructor and the students. The course deals with contemporary approaches to questions such as strategic communication, persuasion, media influence, advertising, narrative building, opinion influence in networks, formation of social networks, and strategic interactions in social networks.

Prerequisites: Your program series of micro and a tolerance for theory. The course will make use of game theoretical tools and of the central ideas of economics of information. We will cover theoretical models as well as their applications for empirical work and economic experiments.

Objectives: (1) Review of freshly brewed material from a boosting fancy field which has many interesting unanswered questions; (2) understanding contemporary approaches to topics of persuasion, narrative building, and the role of networks in social and economic interactions; (3) ideally, sound training and motivation to write a dissertation paper. The course will go through the classical models of strategic communication (signaling, cheap talk, verifiable sender-receiver games, and persuasion), the design of communication environments, the incentives of individuals to engage in social connections, the ways in which local interactions in networks shape how information is transmitted and how people act, and the effects on social welfare.

Some Illustrative Research Questions: The course will gravitate around the type of questions:

- How to organize decision making when different group members in an organization have different information? Who should make decisions?
- How do agents collect information when they make interrelated decisions? How do information acquisition decisions shape team choices or investments in stock market?

- How do politicians or advertisers offer information “packages” to voters or consumers in order to induce them to make specific voting or purchasing choices? How do informed agents “persuade” other, less informed, agents?
- How does advertising shape consumers’ opinions?
- Under which conditions will news providers serve useful information? Who pays for the news? Who pays for clarity in the news? Does competition lead to full or unbiased information? When is the media biased? What are the economic forces behind “fake news”?
- How do social and economic networks emerge?
- How do networks shape the way in which agents learn from others?
- How do networks shape the way in which agents try to influence others?
- When do networks allow for credible communication when agents have conflicting interests?
- How do networks affect the strategic behavior of people?
- When do networks allow for consensus in opinions and aggregate information correctly?
- When do people want to engage in friendship connections with others of similar/dissimilar characteristics?
- How do networks help propagate or mitigate financial risks?
- How do platform providers and regulators target individuals in networks?
- How do different networked layers coexist? Why are we interested in being engaged in different networks simultaneously?
- How do referrals’ networks operate?

Course Organization: The course consists of two separate parts: I. Models of Strategic Communication (around 40% of the course content) and II. Social and Economic Networks (around 60% of the course content). In the first classes of each part, I will present the basic models required to navigate through the papers later on. After that, everyone (myself included) will present papers from the literature of according to research interests and following a pre-arranged schedule. During the week following each presentation, the presenter will send anyone else a referee report on the paper. The referee report will try to identify the paper’s main contributions, its limitations, and the ways in which the paper can be improved. At the end of the course each student will be required to complete a research proposal. Naturally, the research proposal should be related to the topics discussed in class and the papers presented. Students will probably want to use the discussions

during the course, as well as all the referee reports, to elaborate their research proposals. The research proposal can be helpful as a starting point for dissertation work.

Bibliography:

Part I – Models of Strategic Communication (40% of Course Content)

- Kreps, D. M. and J. Sobel: *Signalling*, Chapter 25 in *Handbook of Game Theory*, Vol. 2, Edited by R. J. Aumann and S. Hart, Elsevier Science, (1994)
- Sobel J. (2007): "Signaling Games"
- Sobel J. (2010): "Giving and Receiving Advice"
- Bergemann, D. and S. Morris (2019): "Information Design: A Unified Perspective," *Journal of Economic Literature*, 57(1), 1-57.
- Kamenica, E. (2019): "Bayesian Persuasion and Information Design," *Annual Review of Economics*, 11, 249-272.

Part II – Social and Economic Networks (60% of Course Content)

- Easley D. and J. Kleinberg: *Networks, Crowds and Markets*, Cambridge University Press, 2010. There is a full-text version available online [[here](#)]
- Jackson, M. O.: *Social and Economic Networks*, Princeton University Press, 2008
- Jackson, M. O., B. W. Rogers, and Y. Zenou (2017): "The Economic Consequences of Social Networks," *Journal of Economic Literature*, 55(1), 49-95. There is a WP version available online [[here](#)]
- Jackson, M. O. and Y. Zenou (2015): "Games on Networks," Chapter 3 of *Handbook of Game Theory* Vol. 4, edited by Peyton Young and Shmuel Zamir. There is a WP version available online [[here](#)]
- Wasserman, S. and K. Faust (1994), *Social Network Analysis. Methods and Applications*, Cambridge, Cambridge University Press.

Tentative Syllabus

Part I–Models of Strategic Communication

I.1. Signaling

I.2. Models of Cheap Talk

I.3. Persuasion with Verifiable Information

I.4. Bayesian Persuasion and Information Design

I.5. Boundedly Rational Models: Bayesian Networks Protocols

Part II–Social and Economic Networks

II.1. Introduction: Notions of Graph Theory

II.2. Network Stability Concepts and Efficiency

II.3. Bayesian and Non-Bayesian Models of Learning and Influence in Networks

II.4. Strategic Interactions in Networks

II.5. Homophily and Segregation

II.6. The Idea of Centrality in Networks

Grading Policy: Grades will be based on the quality of the presentations (40%), the referee reports (40%), and the research proposals (20%). The presenters will be expected to act as discussion leaders rather than lecturers. The presentations will aim at clarifying the central points of the papers, while providing an inquisitive and critical look at their contributions. The presentations will intend to address the points:

1. What is the basic idea of the paper? How does the paper go about pursuing the idea?
2. How did you like it? What did you learn from the paper? What are the main novel takeaways relative to the existing literature?
3. How would you clarify technical aspects of the paper? How would you explain the main mechanisms and implications?
4. Do you see any problems or have any criticisms for the paper?
5. How would you extend, stretch, or push the paper further?
6. How would you propose an original research question using what you have learned from the paper?

References for Presentations:

References

H. Allcott and M. Gentzkow. Social media and fake news in the 2016 election. Technical report, National Bureau of Economic Research, 2017.

F. Allen, S. Morris, and H. S. Shin. Beauty contest and iterated expectations in asset markets. *Review of Financial Studies*, 19:720–752, 2006.

R. Alonso, W. Dessein, and N. Matouschek. When does coordination require centralization? *American Economic Review*, 98(1):145–179, 2008.

J. Amador. Learning through word-of-mouth. Technical report, Imperial College London, 2017.

A. Ambrus and S. Takahashi. Multi-sender cheap talk with restricted state spaces. *Theoretical Economics*, 3:1–27, 2008.

G.-M. Angeletos and A. Pavan. Transparency of information and coordination in economies with investment complementarities. *American Economic Review: AEA Papers and Proceedings*, 94:91–98, 2004.

G.-M. Angeletos and A. Pavan. Efficient use of information and social value of information. *Econometrica*, 75:1103–1142, 2007.

N. Antic and N. Persico. Communication among shareholders. Technical report, Northwestern University, 2017.

R. Argenziano, S. Severinov, and F. Squintani. Strategic information acquisition and transmission. *American Economic Journal: Microeconomics*, 8(3):119–155, 2016.

K. J. Arrow. *The Limits of Organization*. Norton, N.Y., 1974.

P. Hung Au. Dynamic information disclosure. *RAND Journal of Economics*, 46(4):791–823, 2015.

R. J. Aumann and M. B. Maschler. *Repeated Games with Incomplete Information*. MIT Press, 1995.

K. Bagwell. The economic analysis of advertising. In M. Armstrong and R. H. Porter, editors, *Handbook of Industrial Organization*, volume 3, pages 1701–844. Norh-Holland, 2007.

V. Bala and S. Goyal. Learning from neighbors. *Review of Economic Studies*, 65:595–621, 1998.

A. Banerji and B. Dutta. Local network externalities and market segmentation. *Discussion Paper, University of Warwick*, 2009.

D. P. Baron. Persistent media bias. *Journal of Public Economics*, 90(1-36), 2006.

M. Battaglini. Multiple referrals and multidimensional cheap talk. *Econometrica*, 70(4):1379–1401, 2002.

D. Bergemann and S. Morris. Information design: A unified perspective. *Journal of Economic Literature*, 57(1):1–57, 2019.

J. Best and D. Quigley. Persuasion for the long rung. Technical report, Oxford University, 2017.

F. Bloch and N. Quérou. Pricing in social networks. *Games and Economic Behavior*, 80:243–261, July 2013.

A. Blume, E. K. Lai, and W. Lim. Strategic information transmission: A survey of experiments and theoretical foundations. Technical report, The University of Arizona, 2017.

I. Brocas and J. D. Carrillo. Influence through ignorance. *RAND Journal of Economics*, 38:931–947, 2007.

A. Cabrales, O. Gossner, and R. Serrano. Entropy and the value of information for investors. *American Economic Review*, 1(360-377), 2013.

B. Caillaud and J. Tirole. Consensus building: How to persuade a group. *American Economic Review*, 97(5):1877–1900, 2007.

A. Calvó-Armengol and J. de Martí-Beltran. Information gathering in organizations: Equilibrium, welfare, and optimal network structure. *Journal of the European Economic Association*, 7(1):116–161, 2009.

A. Campbell. World-of-mouth communication and percolation in social networks. *American Economic Review*, 103(6):2466–2498, 2013.

O. Candogan, K. Bimpikis, and A. Ozdaglar. Optimal pricing in networks with externalities. *Operations Research*, 60(4):883–095, August 2012.

P. Cassell and R. Fowles. What caused the 2016 chicago homicide spike? an empirical examination of the 'aclu effect' and the role of stop and frisks in preventing gun violence. Technical report, University of Utah, 2018.

A. Chakraborty and R. Harbaugh. Comparative cheap talk. *Journal of Economic Theory*, 132:70–94, 2007.

A. Chakraborty and R. Harbaugh. Persuasion by cheap talk. *American Economic Review*, 100(5):2361–2382, 2010.

Y.-K. Che and J. Horner. Optimal design for social learning. Technical report, Yale University, 2015.

Y.-K. Che and N. Kartik. Opinions as incentives. *Journal of Political Economy*, 117(5):815–860, 2009.

V. P. Crawford and J. Sobel. Strategic information transmission. *Econometrica*, 5(6):1431–1451, 1982.

I. Moreno de Barreda. Cheap talk with two-sided private information. Technical report, Oxford University, 2013.

I. Deimen and D. Szalay. Delegated expertise, authority, and communication. *American Economic Review*, 109(4):1349–1374, 2019.

P. M. DeMarzo, D. Vayanos, and J. Zwiebel. Persuasion bias, social influence, and unidimensional opinions. *The Quarterly Journal of Economics*, 118(3):909–968, 2003.

W. Dessein and T. Santos. Adaptive organizations. *Journal of Political Economy*, 114(5):956–995, 2006.

W. Dessein, A. Galeotti, and T. Santos. Rational inattention and organizational focus. *American Economic Review*, 106(6):1522–1536, 2016.

T. Dewan and D. P. Myatt. The qualities of leadership: Direction, communication, and obfuscation. *American Political Science Review*, 102(3):351–368, 2008.

L. Doval and J. C. Ely. Sequential information design. Technical report, Northwestern University, 2016.

W. Dziuda. Strategic argumentation. *Journal of Economic Theory*, 146:1362–1397, 2011.

G. Ellison and D. Fudenberg. Word-of-mouth communication and social learning. *Quarterly Journal of Economics*, pages 93–125, 1995.

J. C. Ely, A. Frankel, and E. Kamenica. Suspense and surprise. *Journal of Political Economy*, 123(1): 215–260, 2015.

R. Enikolopov, M. Petrova, and E. Zhuravskaya. Media and political persuasion: Evidence from russia. *American Economic Review*, 101(7):3253–3285, 2011.

I. P. Fainmesser and A. Galeotti. Pricing network effects. *Review of Economic Studies*, 83:165–198, 2016.

E. Fehr and U. Fischbacher. Why social preferences matter: The impact of non-selfish motives on competition, cooperation and incentives. *Economic Journal*, 112:C1–C33, 2002.

M. Foerster. Dynamics of strategic information in social networks. *Theoretical Economics*, 14:253–295, 2019.

A. Frankel and N. Kartik. Muddled information. *Journal of Political Economy*, 127(4), 2019.

G. R. Frechette, A. Lizzeri, and J. Perego. Rules and commitment in communication: An experimental analysis. Technical report, New York University, 2019.

A. Galeotti and S. Goyal. Influencing the influencers: A theory of strategic diffusion. *RAND Journal of Economics*, 40(3):509–532, 2009.

A. Galeotti, S. Goyal, M. O. Jackson, F. Vega-Redondo, and L. Yariv. Network games. *Review of Economic Studies*, 77(218-244), 2010.

A. Galeotti, C. Ghiglino, and F. Squintani. Strategic information transmission networks. *Journal of Economic Theory*, 148:1751–1769, 2013.

S. Galperti. Persuasion: The art of changing worldviews. Technical report, UC San Diego, 2017.

S. Galperti and J. Perego. A dual perspective on information design. Technical report, UC San Diego, 2018.

S. Galperti and J. Perego. Belief meddling in social networks: An information-design approach. Technical report, UC San Diego, 2019.

S. Galperti and I. Treviño. Coordination, competition for attention, and information supply. Technical report, UC San Diego, 2017.

L. Garicano and A. Prat. Organizational economics with cognitive costs. In D. Acemoglu, M. Arellano, and E. Dekel, editors, *Advances in Economics and Econometrics*. Cambridge University Press, 2013.

M. Gentzkow and J. M. Shapiro. Media bias and reputation. *Journal of Political Economy*, 114(2): 280–316, 2006.

M. Gentzkow and J. M. Shapiro. What drives media slant? evidence from us daily newspapers. *Econometrica*, 78(1):35–71, 2010.

J. Glazer and A. Rubinstein. On optimal rules of persuasion. *Econometrica*, 72(6):1715–1736, 2004.

J. Glazer and A. Rubinstein. A study in the pragmatics of persuasion: a game theoretical approach. *Theoretical Economics*, 1:395–410, 2006.

B. Golub and M. O. Jackson. How homophily affects the speed of learning and best-response dynamics. *The Quarterly Journal of Economics*, 127(3):1287–1338, 2012a.

B. Golub and M. O. Jackson. Does homophily predicts consensus times? testing a model of network structure via a dynamic process. *Review of Network Economics*, 11(3), 2012b.

O. Gonzalez-Guerra and A. Jimenez-Martinez. Versioning with advertising in social networks under uniform distributions of valuations. Technical report, CIDE, 2017.

S. Goyal. *Connections: An Introduction to the Economics of Networks*. Princeton University Press, 2007.

A. R. Gramstad. Nonlinear pricing with local network effects. Unpublished Manuscript, 2016.

J. R. Green and N. L. Stokey. A two-person game of information transmission. Technical report, Harvard University, 1980.

S. J. Grossman. The informational role of warranties and private disclosure about product quality. *Journal of Law and Economics*, 24(3):461–483, 1981.

Y. Guo and E. Shmaya. The interval structure of optimal disclosure. Technical report, Northwestern University, 2017.

J. Hagenbach and F. Koessler. Strategic communication networks. *Review of Economic Studies*, 77: 1072–1099, 2010.

C. Hellwig and L. Veldkamp. Knowing what others know: Coordination motives in information acquisition. *Review of Economic Studies*, 76:223–251, 2009.

C. Hellwig, S. Kohls, and L. Veldkamp. Information choice technologies. *American Economic Review: AEA Papers and Proceedings*, 102(3):35–40, 2012.

J. Horner and A. Skrzypacz. Selling information. *Journal of Political Economy*, 124(6):1515–1562, 2016.

M. Jackson and A. Wolinsky. A strategic model of social and economic networks. *Journal of Economic Theory*, 71(1):44–74, 1996.

M. O. Jackson. *Social and Economic Networks*. Princeton University Press, 2008.

M. O. Jackson and B. W. Rogers. Meeting strangers and friends of friends: How random are social networks? *American Economic Review*, 97(3):890–915, 2007a.

M. O. Jackson and B. W. Rogers. Meeting strangers and friends of friends: How random are social networks? *American Economic Review*, 97(3):890–915, 2007b.

M. O. Jackson and L. Yariv. Diffusion of behaviour and equilibrium properties in network games. *American Economic Review*, 97(2):92–98, 2007.

A. Jimenez-Martinez. Information acquisition interactions in two-player quadratic games. *International Journal of Game Theory*, 43:455–485, 2014.

A. Jimenez-Martinez. A model of belief influence in large social networks. *Economic Theory*, 59(1): 21–59, 2015.

A. Jimenez-Martinez. Discrimination through versioning with advertising in social networks. *Economic Theory*, Forthcoming.

E. Kamenica and M. Gentzkow. Bayesian persuasion. *American Economic Review*, 101(6):2590–2615, 2011.

N. Kartik, F. Xu Lee, and W. Suen. Investment in concealable information by biased experts. *RAND Journal of Economics*, 48(1):24–43, 2017.

M. L. Katz and C. Shapiro. Network externalities, competition, and compatibility. *American Economic Review*, 75:424–440, 1985.

D. M. Kreps and J. Sobel. Signalling. In R. J. Aumann and S. Hart, editors, *Handbook of Game Theory with Economics Applications*, volume 2, chapter 25, pages 849–868. Elsevier, 1994.

V. Krishna and J. Morgan. Asymmetric information and legislative rules: Some amendments. *American Political Science Review*, 95(2):435–452, 2001.

M. V. Leduc, M. O. Jackson, and R. Johari. Pricing and referrals in diffusion on networks. Unpublished Manuscript, 2017.

G. Levy and R. Razin. On the limits of communication in multidimensional cheap talk: A comment. *Econometrica*, 75(3):885–803, 2007.

G. Levy and R. Razin. On the limits of communication in multidimensional cheap talk. Technical report, London School of Economics, 2014.

T. R. Lewis and D. E. M. Sappington. Supplying information to facilitate price discrimination. *International Economic Review*, 35(2):309–327, 1994.

E. Lipnowski and D Ravid. Cheap talk with transparent motives. Technical report, University of Chicago, 2019.

E. Lipnowski, D. Ravid, and D Shishkin. Persuasion via weak institutions. Technical report, University of Chicago, 2019.

J. Marschak and R. Radner. *Economic Theory of Teams*. Yale University Press, New Haven and London, 1972.

P. Milgrom and J. Roberts. Relying on the information of interested parties. *RAND Journal of Economics*, 17(1):18–32, 1986.

P. Milgrom and J. Roberts. *Economics, Organization, and Management*. Prentice-Hall, Englewoods Cliffs, New Jersey, 1992.

P. R. Milgrom. Good news and bad news: Representation theorems and applications. *The Bell Journal of Economics*, 12(2):380–391, 1981.

D. Min. Bayesian persuasion under partial commitment. Technical report, University of Arizona, 2017.

S. Morris and H. Shin. The social value of public information. *American Economic Review*, 92 (1521-1534), 2002.

S. Morris and M. Yang. Coordination and continuous choice. Technical report, Princeton University, 2016.

S. Mullainathan and A. Shleifer. Media bias. Technical report, NBER, 2002.

S. Mullainathan and A. Shleifer. The market for news. *American Economic Review*, 95(4):1031–1053, 2005.

S. Mullainathan, J. Schwartzstein, and A. Shleifer. Coarse thinking and persuasion. *Quarterly Journal of Economics*, 123(2):577–619, 2008.

D. P. Myatt and C. Wallace. Endogenous information acquisition in coordination games. *Review of Economic Studies*, 79(1):340–374, 2012.

A. Nguyen and T. Y. Tan. Bayesian persuasion with costly messages. Technical report, Carnegie Mellon University, 2019.

J. Perego and S. Yuksel. Media competition and social disagreement. Technical report, Yale University, 2018.

A. Prat and W. Dessein. Attention in organizations. Technical report, Columbia University, 2015.

A. Prat and M. Ottaviani. The value of public information in monopoly. *Econometrica*, 69(6):1673–1683, 2001.

A. Prat and D. Stromberg. The political economy of mass media. Technical report, London School of Economics, 2010.

H. Rantakari. Governing adaptation. *Review of Economic Studies*, 75(1257-1285), 2008.

L. Rayo and I. R. Segal. Optimal information disclosure. *Journal of Political Economy*, 118(5):949–987, 2010.

R. Renault. Advertising in markets. In S. P. Anderson, D. Stromberg, and J. Waldfogel, editors, *Handbook of Media Economics*. Elsevier, 2015.

D. J. Seidmann and E. Winter. Strategic information transmission with verifiable messages. *Econometrica*, 65(1):163–169, 1997.

E. Shin. Social network formation and strategic interaction in large networks. Unpublished Manuscript, 2016.

H. S. Shin. Adversarial and inquisitorial procedures in arbitration. *RAND Journal of Economics*, 29(2):378–405, 1998.

I. Taneva. Information design. Technical report, The University of Edinburgh, 2018.

L. L. Veldkamp. *Information Choice in Macroeconomics and Finance*. Princeton University Press, 2011.

D. J. Watts and S. H. Strogatz. Collective dynamics of 'small world' networks. *Nature*, 393:440–442, 1998.