

# Eco212B: Information Economics

Date, Place, Spring 2015  
Website

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This is a topics course in information economics. It is self-contained but of course the micro theory sequence as well as the other 2nd year classes will be helpful, in particular the contract theory course taught in the fall by Simon Board. Realistically, we may cover ~3 of the 6 below topics in the course. We can emphasize topics according to students' interest. For those enrolled, there will be problem sets and a final examination, possibly as a presentation in class or a mock referee report.

All the papers below should be available online, most of them on JSTOR. I will post lecture notes.

## 1 Value of Information

**Overview:** Information enables better decisions. We will study the basic properties of the demand for information such as comparing the value of two signals, the (non-monotonic) marginal value of information and conditions under which signals are substitutes or complements. As applications we will study information acquisition incentives in pricing, auctions, committee decision problems, and security design.

**Mathematical Nuggets:** Blackwell's sufficiency theorem

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- Akerlof (1970), "The Market for "Lemons": Quality Uncertainty and the Market Mechanism" *QJE*, **84** (3); 488-500
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- Chade, Schlee (2002), "Another Look at the Radner-Stiglitz Non-Concavity in the Value of Information", *JET*, **148**; 165-195
- Dang, Gorton and Holmstrom (2013), "The Information Sensitivity of a Security", *mimeo*
- Eso, Szentes (2007), "Optimal Information Disclosure in Auctions and the Handicap Auction", *ReStud*, **74**; 705-731
- Gershkov, Szentes (2009), "Optimal voting schemes with costly information acquisition", *JET*, **144**; 36-68
- Keppo, Moscarini, Smith (2008), "The demand for information: More heat than light", *JET*, **138**; 21-50
- Lehmann (1988), "Comparing Location Experiments", *Annals of Statistics*, **16** (2); 521-533
- Moscarini, Smith (2008), "The Law of Large Demand for Information", *Econometrica*, **70** (6); 2351-2366

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- Persico (2004), “Committee Design with Endogenous Information”, *ReStud*, **71** (1); 165-191
- Radner, Stiglitz (1984), “A Non-concavity in the Value of Information”, Bayesian Models in Economic Theory, edited by M.Boyer and R.E. Kihlstrom; 33-52

## 2 Experimentation:

**Overview:** Often the best way to learn about some new activity or product is to try it out. Even if the chances of success are low, the option value of learning one’s tastes may outweigh static preference consideration. We start with the introduction of the famous Gittins index for “bandit problems” and proceed to applications in IO, labor economics and finance.

**Mathematical Nuggets:** Gittins’ index theorem, Martingale convergence theorem

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- Bergemann, Välimäki (2008) “Bandit Problems”, in Steven Durlauf and Larry Blume, eds., *The New Palgrave Dictionary of Economics*, 2nd ed. Macmillan Press; 336-340
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- Bergemann, Välimäki (2001) “Stationary Multi Choice Bandit Problems”, *Journal of Economic Dynamics and Control*, **25**; 1585-1594
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- Bolton, Harris (1999) “Strategic Experimentation”, *Econometrica*, **67**; 349-374 1299-1310
- Alessandro Bonatti, Johannes Horner (2009) “Collaborating”, *AER*, **101** (2); 632-663
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- Jovanovic, Nyarko (1996), “Learning by Doing and the Choice of Technology”, *Econometrica*, **64** (6); 1299-1310
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- Moscarini, Smith (2001), “The Optimal Level of Experimentation”, *Econometrica*, **69** (6); 1629-1644
- Roessler, Shelegia, Strulovici (2001), “Can Commitment Resolve Political Inertia? An Impossibility Theorem”, *mimeo*
- Rothschild (1974), “A Two-Armed Bandit Theory of Market Pricing”, *JET*, **9**; 185-202
- Strulovici (2009), “Learning While Voting: Determinants of Collective Experimentation”, *Econometrica*, **78** (3); 933-971
- Wald (1947), “Foundations for a General Theory of Sequential Decision Functions”, *Econometrica*, **15**; 279-313
- Weber (1992), “On the Gittins Index for Multi-Armed Bandits”, *Annals of Applied Probability*, **4**; 1024-1033
- Weitzman (1979), “Optimal Search for the Best Alternative”, *Econometrica*, **47**; 641-654

### 3 Social Learning:

**Overview:** In many settings in financial economics, IO and political economics exhibit learning from the behavior of others. If the others' information can be deduced from their past actions, learning will eventually occur and the decision makers will take the optimal actions. If on the other hand individuals orient their actions too much on past actions and too little on own information "informational cascades" and herds occur and learning stops.

#### References:

- Banerjee (1992), "A Simple Model of Herd Behavior", *QJE*, **107**; 797-817
- Bikhchandani, Hirshleifer, Welch (1992), "A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades", *JPE*, **100**; 992-1026
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- Celen, Kariv (2004), "Observational Learning Under Imperfect Information", *Games*, **47**; 72-86
- Gale (1996), "What have we learned from social learning", *EER*, **40**; 617-628
- Goeree, Palfrey (2007), "Self-Correcting Information Cascades", *REStud*, **74**; 733-762
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- Smith, Sorensen (2000), "Pathological Outcomes of Observational Learning", *Econometrica*, **68**; 371-398
- Smith, Sorensen (2012), "Informational Herding, Optimal Experimentation, and Contrarianism", *mimeo*
- Song (2014), "Social Learning with Endogenous Network Formation", *mimeo*

### 4 Strategic Communication:

**Overview:** Conflicts of interests can hinder communication. If a division manager, say, anticipates that headquarters will divert funds from his division if he communicates problems, he will try to shade such problems. Similarly in court, an attorney may be reluctant to call a witness if he is uncertain about the testimony and its effect on the jury. These problems are alleviated if talk can be backed up by facts and the only way to lie is by withholding information.

#### References:

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- Benabou, Laroque "Using privileged information to manipulate markets: Insiders, gurus, and credibility", *QJE*, **107**, 921-958
- Battaglini (2002) "Multiple referrals and multidimensional cheap talk", *Econometrica*, **70**: 1379-1401
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- Crawford, Sobel (1982) "Strategic information transmission", *Econometrica*, **50**: 1431-1451
- Cremer, Garicano, Prat (2007) "Language and the theory of the firm" *QJE*, **122**, 373-407
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- Feddersen, Pesendorfer (1996) "The Swing Voter's Curse" *AER*, **86** (3), 408-424

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- Goltsman, Horner, Pavlov, Squintani (2009) “Mediation, arbitration, and negotiation”, *JET*, **144**: 1397-1420
- Kamenica, Gentzkow (2011) “Bayesian Persuasion”, *AER*, **101**: 2590-2615
- Krishna, Morgan (2004) “The art of conversation: eliciting information from experts through multi-stage communication”, *JET*, **117**: 147-179
- Milgrom (1981) “Good news and bad news: representation theorems and applications”, *Bell*, **12** (2): 380-391
- Morris (2001) “Political correctness”, *JPE*, **109**: 231-265
- Sobel (2010) “Giving and Receiving Advice” *Lecture at ESWC*
- Szalay (2005) “The economics of clear advice and extreme options”, *REStud*, **72**: 1173-1198

## 5 Reputation

**Overview:** In the absence of formal contracts, one channel that keeps economic agents honest is their reputational concerns. A firm that doesn’t fight back when others eat its lunch invites further entry; a firm that is found to sell shady quality loses customers; a manager (or a tenured professor) who fails to deliver will be inferred to be inept and punished by the labor market.

**Topics:** Commitment types, inept types, mimicking, monitoring, trade-marks, career-concerns, reputational incentives, reputational dynamics.

### References:

- Anderson, Smtih (2010), “Dynamic Matching and Evolving Reputations,” *RES*, 77(1), 3-29.
- Bar-Isaac (2003), “Reputation and Survival: learning in a dynamic signalling model”, *REStud*, 70(2), 231-251.
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- Morris (2001), "Political Correctness", *JPE*, 109(2), 231-265
- Tadelis (1999), "What's in a Name? Reputation as a Tradeable Asset," *JPE*, 89(3), 548-563
- Wolitzky (2010), "Dynamic monopoly with relational incentives", *TE*, 5, 479-518
- Wolitzky (2012), "Reputational Bargaining under Knowledge of Rationality", *Econometrica*, 80 (5), 2047-2087.

## 6 Information Aggregation:

### References:

Milgrom (1981), "Rational Expectations, Information Acquisition, and Competitive Bidding," *Econometrica*, 49 (4), 921-943.

Pesendorfer and Swinkels (1997) "The Loser's Curse and Information Aggregation in Common Value Auctions", *Econometrica*, 65 (6), 1247-1281

Lauermann, Wolinsky (2013) "Search with Adverse Selection", *mimeo*

Ekmecki, Lauermann (2014) "Manipulated Electorates and Information Aggregation", *mimeo*

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## 7 Global Games:

### References:

George-Marios Angeletos, Christian Hellwig, Alessandro Pavan (2007), "Dynamic Global Games of Regime Change: Learning, Multiplicity, and the Timing of Attacks", *Econometrica*, **75**; 711-756

Carlsson, van Damme (1993), "Global Games and Equilibrium Selection", *Econometrica*, **61**; 989-1018

Hellwig (2002), "Public Information, Private Information, and the Multiplicity of Equilibria in Coordination Games", *JET*, **107**; 191-222

Morris, Shin (1998), "Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks", *AER*, **88**; 587-597

more to come

## 8 Dynamic Mechanism Design

**Topics:** pricing externalities, learning demand, Coasian dynamics

### References:

Bergemann, Välimäki (2010) "The Dynamic Pivot Mechanism", *Econometrica*, **78**; 771-789

Gershkov, Moldovanu (2010) "Learning about the Future and Dynamic Efficiency", *AER*, **99**; 1576-1588

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Pavan, Segal, Toikka "Dynamic Mechanism Design: A Myersonian Approach", *Econometrica*, 82 (2), 601-653

## 9 Dynamic Signalling

**Topics:** repeated and dynamic signalling.

### References:

Admati and Perry (1987), "Strategic delay in bargaining," *REStud.*

Daley and Green (2012), "Waiting for News in the Dynamic Market for Lemons," *Econometrica*, 80 (4), 1433-1504

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Kaya (2009), "Repeated Signaling Games", *Games*.

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Swinkels (1999), "Education signaling with preemptive offers," *REStud.*

## 10 Foundations of Incomplete Contracts

**Topics:** holdup problem, ownership, message games, specific performance contracts, option contracts, strategic ambiguity, complexity, descriptibility.

### References:

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Maskin and Tirole (1999), "Unforeseen Contingencies and Incomplete Contracts," *Review of Economic Studies*.

Maskin and Moore (1999), "Implementation and Renegotiation," *Review of Economic Studies*.

Noldeke and Schmidt (1995), "Option Contracts and Renegotiation: A Solution to the Hold-up Problem," *RAND*.

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Segal (1999), "Complexity and Renegotiation: A Foundation for Incomplete Contracts," *REStud*.

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Spier (1992), "Incomplete Contracts and Signalling," *RAND*.

Watson (2007), "Contract, Mechanism Design, and Technological Detail," *Econometrica*.

## 11 Common Agency

**Topics:** Complete information multilateral contracting.

### References:

Bolton and Dewatripont, *Chapter 13.3*.

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Bernheim and Whinston (1986), "Menu Auctions, Resource Allocation, and Economic Influence," *QJE*.

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Segal (1999), "Contracting with Externalities," *QJE*.

Stole (2007), "Price Discrimination in Competitive Environments" *Handbook of Industrial Organization*