

Information Economics
Indian School of Business
Term 8, 2009-10

Instructor Tarun Jain
Office AC 8 Level 1 Wing B Room 8116
Contact tarun_jain@isb.edu (preferred), 2318-7267
Office hours By appointment

Description

This course addresses information problems that you are likely to confront in business environments. The emphasis will be on transactions with asymmetric information where one party does not have complete or perfect information about other (and vice versa). For example, the seller of a used car has better information about the car's quality than the buyer. Compared to an employer, a prospective employee has better information about whether she works hard, or slacks off. While selling rights of transmission on the public airwaves, the government does not know what each broadcaster is willing to pay. If the parties hide this information, they might (negatively) impact the success of business transactions. Keen insight into these asymmetric information problems will help you develop strategies, incentives, and mechanisms to overcome them.

Since this is an economics course, the focus is on developing **insight** into the critical aspects of each problem, not to memorize facts or “the right answer”. The main tool we will use for this is *game theory*, which is a logical way to think about strategic situations. Since we are also seeking **solutions**, we will use internet-based *classroom games* to mimic business environments that you might find yourself in some day, either as a market participant on one side of a transaction, or as a market designer who has to set the rules under which the transaction can take place. To mimic the motivations of market participants, I will randomly pay the game earnings for one of you in cash or cash equivalents.

Course pre-requisite

Managerial Economics (MGEC) is a prerequisite for this course. I will assume that you are fluent in the material from MGEC, especially game theory. We will use mathematics at the high school (Class 12) level.

Required materials

1. Course readings on blackboard
2. Case handouts
3. Laptop with wireless internet connectivity

Required software

We will conduct games online nearly every session. Bring your laptop to class and direct your browser to <http://veconlab.econ.virginia.edu>. The software on this site is free but I will provide you with the code for our class.

Recommended books

1. Charles Holt (2006) Markets, Games and Strategic Behavior, New York: Addison Wesley
2. Avinash Dixit, Susan Skeath and David Reiley (2009) Games of Strategy, New York: W. W. Norton and Co.

Evaluation

Your final grade will depend on the following components.

1. Project report	20%
2. Homework	10%
3. Midterm exam	25%
4. Final exam	35%
5. Class attendance	10%

You can choose which topic to write a project report on. To aid your analysis, I will share with you data from the classroom game. A high quality report will combine insight, brevity and good writing. You can work on your project with a team and turn in a single product. Maximum team size is four. Choose your own team members from other students enrolled in the class (from any section). The project report is due within one week of the topic discussion, with reports on the final two topics due the day before the final exam. Higher quality standards are expected from project reports submitted late in the course than reports submitted early in the course. Submit a hard and soft copy version of the report. Submit the hard copy to the Academic Associate in class and the soft copy through Turn-it-in (Details available on Blackboard).

Homework is designed to test whether you are following class discussions so you must complete each assignment by yourself. There will be nine assignments, due before the start of each class, out of which the best five will count towards your homework grade.

The midterm and final exams will be closed book and closed notes. No calculators or cell phones are allowed. The best way to do well is to attend class, understand the concepts, ask questions and complete the assignments.

I am willing to substitute the exams for a well-written research paper on a topic in information economics. Students who wish to pursue this option should contact me with a proposal by Session 3. The completed paper is due at the time of the final exam.

Attendance Policy

Online games conducted in the classroom are a cornerstone of this course. Not only do I need to set the number of participants in advance of each session, but learning in interactive settings is virtually impossible if all students are not in the class. So attendance is mandatory. Each unexcused absence will be penalized 2% of your grade, with more severe penalties if you somehow miss more than 5 sessions. At the same time, coming to class will offer one of you the opportunity to earn the equivalent of approximately Rs. 500 in each session, so I hope you feel motivated by both by the educational and pecuniary benefits of attending class.

Following from the previous point, you should review the material from the previous class and be prepared to ask questions. The cliché that “any question you have is probably one that others have as well” is doubly true in this course. Don’t worry about disruptions. If I feel that the question belongs to office hours, I will let you know. I will also call on students to answer questions (if you are not volunteering already) so that we are on the same page at all times.

Contact

Email is a good way to ask me quick questions (such as “My email got erased. Where is the review session again?”). For more conceptual questions (such as “I don’t understand the properties of information cascades at all”), I recommend coming to office hours. If you feel yourself overwhelmed by the material at any time, please do not procrastinate and come see me during office hours.

Session-Wise Topics/Readings

I expect that you will complete the required readings and prepare for discussion *before* class. The schedule for required readings by date is below under “Required reading”.

1. **Introduction and revision of game theory (Feb 23)**

Concepts Prisoner’s dilemma, Coordination, Private information, Incomplete information, Sequential and simultaneous games, Uncertainty and risk, Cheap talk

Required reading

Feb 23 “A Beautiful Mind” <http://www.youtube.com/watch?v=Touau7QRv8I>

Classroom games

- Traveler’s dilemma

Optional reading

- Holt and Roth (2004) “The Nash equilibrium: A perspective,” Proceedings of the National Academy of Sciences.
- Basu (1994) “The traveller’s dilemma: Paradoxes of rationality in game theory,” American Economic Review.

2. **Adverse selection (Feb 26 and Mar 02)**

Concepts Market for lemons, Buyer’s curse, Signaling and screening, Groups and trust, Advantageous selection, Private information of risk preferences.

Applications Insurance annuities market, Credit rationing, Employee hiring, Corporate investment and capital structure, Monetary policy, Microcredit lending

Required reading

Feb 26 The Economist (2007) “Happy-go-lucky young”.

Feb 26 Kevin Corts (1997) “Asymmetric information: Market failures, market distortions, and market solutions” Harvard Business School Case Study.

Mar 02 Sukhadeo Thorat and Paul Attewell (2007) “The legacy of social exclusion: A correspondence study of job discrimination in India,” Economic and Political Weekly.

Mar 02 Surinder Jodhka and Katherine Newman (2007) “In the name of globalization: Meritocracy, productivity and the hidden language of caste,” Economic and Political Weekly.

Classroom games

- M&A takeover game
- Signaling game
- Statistical discrimination in the employment market

Optional reading

- Akerlof (1970) “Market for lemons,” Quarterly Journal of Economics.
- Allen and Faulhaber (1989) “Signaling by underpricing in the IPO Market,” Journal of Financial Economics.
- Phelps (1972) “The statistical theory of racism and sexism,” American Economic Review.
- Karlan and Zinman (2010) “Observing unobservables: Identifying information asymmetries with a consumer credit field experiment,” Econometrica.

3. Herding behavior (Mar 04)

Concepts Collective intelligence, Rational learning, Information cascade, Group behavior, Fads, Bubbles

Applications Stock recommendations, Asset price bubbles, Technology adoption

Required reading

Mar 04 Sushil Bikhchandani, David Hirshleifer and Ivo Welch (1998) "Learning from the behavior of others: Conformity, fads, and informational cascades," Journal of Economic Perspectives.

Classroom game

- Information cascades

Optional readings

- Banerjee (1992) "A simple model of herd behavior," Quarterly Journal of Economics.
- Bikhchandani and Sharma (2001) "Herd behavior in financial markets," IMF Staff Papers.

4. Public goods (Mar 09 and Mar 11)

Concepts Public goods, Public versus private provision, Externalities, Congestion, Coasian bargaining, Regulation

Applications Broadcast TV, Charitable giving, Infrastructure spending, Toll highways and congestion pricing.

Required readings

Mar 09 The New York Times (2008) "What makes people give?"
Mar 11 Ka-Fu Wong, Timothy Hau and Amaud Vagner (2007) "Road building or road pricing?" Harvard Business School Case Study.

Classroom games

- Voluntary contributions
- Entry and congestion

Optional readings

- Coase (1960) "The problem of social cost," Journal of Law and Economics.
- Marwell and Ames (1981) "Economists free ride, does anyone else? Experiments on the provision of public goods," Journal of Public Economics.
- Karlan and List (2007) "Does price matter in charitable giving? Evidence from a large-scale natural field experiment," American Economic Review.

5. Information acquisition and costs (Mar 16)

Concepts Search, Learning, Matching, Price dispersion, Social networks

Applications Job search, Shopping, Rural ICT, Recommendation systems

Required reading

Mar 16 Aparijita Goyal (2010) "Information, direct access to farmers, and rural market performance in central India," American Economic Journal: Applied Economics.

Classroom game

- Sequential search

Optional readings

- Jensen (2007) “The Digital Provide: Information (technology), market performance and welfare in the South Indian fisheries sector,” Quarterly Journal of Economics.
- Ariely and Lynch (2000) “Wine online: Search costs affect competition on price, quality and distribution,” Marketing Science.
- Borgatti and Cross (2003) “A relational view of information seeking and learning in social networks,” Management Science.

6. Auction design (Mar 18 and Mar 23)

Concepts Auctions with private values (First-price, Second-price, All-pay auctions), Auctions with interdependent values (Common value auction), Winner’s curse, Collusion

Applications Procurement auctions, eBay.com, Pollution credits, Telecom spectrum auction, IPO auctions, Course and interview allocations in business schools

Required readings

- Mar 18 The Economist (2002) “Bidding adieu.”
- Mar 18 Paul Klemperer (2002) “What really matters in auction design,” Journal of Economic Perspectives.
- Mar 18 Guhan Subramanian and Michelle Kalka (2001) “Auction vignettes,” Harvard Business School Case Study.
- Mar 23 Avin Dwivedy, Matthias Hild and Akash Raj (2004) “The biggest auction ever: 3G licensing in Western Europe,” Darden Case Study.
- Mar 23 Geoff Gloecker (2009) “Up for auction: B-School classes, Job interviews,” BusinessWeek magazine.

Classroom games

- English and Dutch auction
- First-price and second-price auction
- All-pay auction
- Emissions permit auction
- Common value auction

Optional readings

- Budish and Cantillon (2009) “The multi-unit assignment problem: Theory and evidence from course allocation at Harvard,” University of Chicago Booth Working Paper.

7. Market design (Mar 25)

Concepts Incentive compatibility, Allocative efficiency, Institutional features, Rule making, Repugnant markets

Applications Google adwords, Medical resident matching, Cap-and-trade pollution markets, Incentive design for employees, Kidney exchange, Airport landing slots

Required readings

- Mar 25 Hal Varian (2002) “Avoiding the pitfalls when economics shifts from science to engineering,” New York Times.

Mar 25 Stephen Levy (2009) "Secret of Googlenomics: Data-fueled recipe brews profitability," Wired Magazine and related video
<http://www.youtube.com/watch?v=K7l0a2PVhPQ>

Optional readings

- Roth (2002) "The economist as engineer: Game theory, experimentation, and computation as tools for design economics," Fisher-Schultz Lecture, Econometrica.
- Roth (2008) "What have we learned from market design?" Hahn Lecture, Economic Journal.
- Banerjee, Duflo, Ghatak and LaFortune (2009) "Marry for what? Caste and mate selection in modern India", MIT Department of Economics working paper.

Classroom games

- No games, just discussion!