

Course title: **Information Economics and Its Applications**

No of credits: **4**

No. of lecture hours: **42 (approx.)**

Type of course: **Optional**

Course scheduling: **One Semester (Monsoon)**

Contact hours: **3 hours per week**

Course Instructor: **Sangeeta Bansal**

Course Description

Information economics is the study of situations in which different economic agents have access to different information. The purpose of the course is to introduce students to the effect of asymmetric information on the efficiency properties of market outcomes and the kind of institutions and patterns of behavior develop in response to informational asymmetries. The course begins by developing game-theoretical tools required for analyzing situations of asymmetric information. It then studies some of the main subjects in the field: risk sharing, moral hazard, adverse selection (signaling, screening), mechanism design. Finally it studies applications of the theory developed to other applied fields in economics such as auctions, finance, environmental economics, etc.

Course Contents

1. **Introduction to Information Economics**
2. **Games with incomplete information:** Static Bayesian games, Bayesian Nash equilibrium; dynamic Bayesian games, Perfect Bayesian equilibrium and sequential equilibrium.
Gibbons (1992), *A Primer in Game Theory*, Chapters 3 and 4.
Jehle and Reny (2001), *Advanced Micro Economic Theory*, Pearson Education. Chapter 7.
Fudenberg and Tirole (1991), *Game Theory*, Chapter 6.
3. **The Principal - Agent Problem:** Hidden actions (Moral hazard) problem, hidden information problems, monopolistic screening
Mas Collèl Whinston and Green (1995), *Microeconomic Theory (MWG)*, Oxford University Press. Chapter 14.
Kreps *A Course in Microeconomic Theory*, Chapter 16.
Jehle and Reny, Chapter 8, 362-370.
Varian (Third edition), *Microeconomic Analysis* Ch 25.
Hart, O., and B. Holmstrom, (1987) "The Theory of Contracts." In T. Bewley (ed.), *Advances in Economic Theory -- Fifth World Congress*. Cambridge University Press.
Milgrom, P. (1981). Good news or bad news: Representation theorems and applications. *Bell Journal of Economics* 12: 380-91.
4. **Adverse Selection**
Concept, lemons problem, game theoretic approach
MWG. Chapter 13 A, B pp 436-450
Varian Chapter 25.8 pp 467-469

Kreps. Chapter 17 pp 625-629.

Jehle and Reny, Chapter 8, pp 329-335.

Akerlof, G.(1970) "The market for lemons: Qualitative uncertainty and the market mechanism" *Quarterly Journal of Economics* 84, 3, 488 – 500.

5. Signaling

Separating and Pooling equilibrium, Insurance market, cheap talk

MWG. Chapter 13 C, pp 450-460

Varian Chapter 25 10-11, pp 469-471

Kreps. A Course in Microeconomic Theory. Chapter 17.

Jehle and Reny Ch 8. pp 335-353.

Spence, A. M. "Job Market Signaling." *Quarterly Journal of Economics* 87 (1973).

Grossman, S. (1981), "The Informational Role of Warranties and Private Disclosure about Product Quality" *Journal of Law and Economics*, Vol. 24, No. 3, 461-483.

Milgrom, P. and J. Roberts (1982), "Limit Pricing and Entry under Incomplete Information: An Equilibrium Analysis." *Econometrica* 50, 443-59.

Cho and Kreps (1987), "Signaling games and stable equilibria" *Quarterly Journal of Economics* 102, 179-221.

6 Screening

Second degree price discrimination (From Tirole, Industrial Organization Ch 3 Section 3.3 and the supplementary section., also see Fudenberg and Tirole, Game Theory, pages 246 to 250.)

Screening in Competitive Insurance Market, Monopoly screening in insurance Market

MWG. Chapter 13 D, pp. 460-467.

Kreps. Chapter 17.2, pp. 638-645.

Jehle and Reny Chapter 8, 353-362

Varian. Chapters 25.6-9, pp. 457-469.

Rothschild, M., and J. Stiglitz. (1976), "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information." *Quarterly Journal of Economics* 90, no. 4 : 629-649.

7. Introduction to Mechanism design

Basic concepts, revelation principle, truthful implementation, Groves-Clarke mechanisms

MWG. Chapter 23 A-D, pp. 857 -891.

Kreps. Chapter 18, pp 661 -713.

Varian Chapter 23, pp 414-431

8. **Applications of mechanism design to bargaining and auctions**

Bidding behavior in the four standard auctions: First-price sealed bid, second price sealed bid, Dutch auction, English auction. Revenue equivalence theorem

Jehle and Reny, Chapter 9.

9. **Applications to Finance**

Credit market rationing

Bester and Helwig (1987) 'Moral hazard and equilibrium credit rationing: An overview of the issues,' discussion paper A -125, Bonn.

Grossman and Hart (1983) Implicit contract under asymmetry of information
The Quarterly Journal of Economics, Vol. 98, Supplement 123-156.

Microeconomics of Banking, Freixas and Rochet, Ch 1,

Tirole, Corporate Finance, Chapter 3.

10. **Applications to Environmental Economics**

Spulber, D. (1988) "Optimal Environmental Regulation under Asymmetric Information" *Journal of Public Economics* 35, 163-181.

Foulo, J., P. Lanoie and B. Laplante (2002) Incentives for Pollution Control: Regulation or Information? *Journal of Environmental Economics and Management* 44, 169-187.

Additional Readings

Bulow, J., and J. Roberts. "The Simple Economics of Optimal Auctions." *Journal of Political Economy* 97 (1989): 1060-90.

Bolton Patrick and Mathias Dewatripont (2005), Contract Theory, The MIT Press.

Freixas and Rochet, Microeconomics of Banking

Ines Macho-Stadler and J. David Perez-Castrillo (2001), An Introduction to the Economics of Information Incentives and Contracts, Oxford University Press.

Molho, Economics of Information, Blackwell publishing

Tirole, Corporate Finance.

May 2008