

**Boston College**  
**Department of Economics**

**Game Theory and**  
**Economics of Information**

Econ 741  
T. Th. 1:30-3:30  
Spring, 1998

Chongen Bai  
Carney 148  
X3690

Text books:

Required:

Gibbons, R, *Game Theory for Applied Economists*, Princeton University Press, 1992.

Mas-Colell, A., M. Whinston and J. Green, *Microeconomic Theory*, Oxford University Press. (MWG)

Recommended:

Fudenberg and Tirole, *Game Theory*, MIT Press, 1991. (F&T)

Varian, H. R., *Microeconomic Analysis*, W. W. Norton.

There will be a midterm exam covering Part I and a final exam covering Part II, each accounting for 50% of the course grade. Class participation will be considered for borderline cases. Problem sets will be handed out periodically. Although they will not be graded, students are strongly advised to work through them.

Office Hours: Friday 3:00 - 5:00, or by appointment.

Part I. Game Theory

1. Static Games of Complete Information

Readings:

Gibbons: Chapter 1

MWG: 7.A - 8.D, 12.C

F&T: Chapters 1 and 2

Concepts:

Normal Form Representation, Pure Strategy, Strict Dominance, Iterated  
Strict Dominance, Nash Equilibrium, Mixed Strategy

Applications:

Second Price Auction, Cournot Equilibrium, Tragedy of the Commons

## 2. Dynamic Games of Complete Information

### Readings:

Gibbons: Chapter 2

MWG: 9.A - 9.B, 12.D

F&T: Chapters 1 and 2

### Concepts:

Extensive Form Representation, Backward Induction, Subgame Perfect Equilibrium, Time Consistency, Two-Stage Games, Repeated Games, The Folk Theorem

### Applications:

Stackelberg Equilibrium, Entry Deterrence, Monetary Policy, Strategic Investment, Tariffs and Imperfect Competition, Collusion Between Cournot Duopolists, Efficiency Wages, Tournaments, Rubenstein's Bargaining Game.

## 3. Static Games of Incomplete Information

### Readings:

Gibbons: Chapter 3

MWG: 8.E

F&T: Chapter 6

### Concepts:

Bayes' Theorem, Bayesian Nash Equilibrium, The Revelation Principle

### Application:

Asymmetric Information Duopoly, Provision of a Public Good, Auctions

## 4. Dynamic Games of Incomplete Information

### Readings:

Gibbons: Chapter 4

MWG: 9.C, 9.D

F&T: Chapters 8, 9 and 10

### Concepts:

Perfect Bayesian Equilibrium, Signaling Games, Pooling and Separation Equilibrium, Equilibrium Refinements, The Intuitive Criteria

### Applications:

Limit Pricing, Job Market Signaling, Reputation in Finitely Repeated Games, Sequential Bargaining under Asymmetric Information

## Part II. Economics of Information

### 0. Introduction

#### 1. Adverse Selection

MWG: Chapter 13

##### (1). Markets with Adverse Selection

Akerlof, G., 1970 "The Market for Lemons: Qualitative Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 84, pp 488-500.

##### (2). Signaling

Spence, A.M., 1973 "Job Market Signaling," *Quarterly Journal of Economics*, 87, pp 355-376.

(3). Screening

a. Monopsony Screening

Cooper, R., 1984 "On Allocative Distortions in Problems of Self-Selection," *Rand Journal of Economics*, Winter, pp 568-578.

b. Competitive Screening

Rothchild, M. and Stiglitz, J., 1976 "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information," *Quarterly Journal of Economics*, 90, pp 629-650.

2. Moral Hazard

MWG: Chapter 14

Holmstrom, B., 1979 "Moral Hazard and Observability," *Bell Journal of Economics*, Autumn, pp 79-91.

Grossman, S.J. and Hart, O., 1983 "An Analysis of the Principal-Agent Problem," *Econometrica*, Vol. 51, No. 1, pp 7-45.

(1). Discrete Actions

(2). Continuous Actions

3. Mechanism Design

MWG: Chapter 23

F&T: Chapter 7.