Game Theory with Applications to Economics (EP 534)

M.A. Optional Course Number of Credits: 4

Method of Evaluation: There will be two examinations, one mid-semester and one end-semester, of equal weightage.

This course is designed to introduce game theory to students who will later use game theoretic models in applied fields within economics. Our emphasis will be on the conceptual analysis, keeping the level of mathematics to a minimum, especially at a level that should be quite acceptable to the average CESP student. Yet one should bear in mind that this still implies that one should be at ease with basic probability theory, real analysis and calculus, and more importantly, one should be used to thinking in mathematical terms. A brief outline of the course is given below with some suggested readings.

1.Introduction to game theory

2.Static Games of Complete Information

a.Normal form representation of games.

b.Idea of domination: dominance solvable games

c.Rationalizable equilibrium : definition and examples.

d.Nash Equilibrium : definition and examples.

e.Existence theorems on Nash equilibria

3.Dynamic Games of Complete Information

a.Extensive form representation of games.

b.Games of perfect information: backward induction outcomes and examples.

c.Games of imperfect information: Subgame perfect equilibrium and examples.

d.Sequential bargaining: Rubinstein model

e.Repeated games: Introduction and examples, infinitely and finitely repeated games, collusion, trigger strategies and folk theorem.

4. Static games of incomplete information

a.Static Bayesian games and Bayesian Nash equilibrium : introduction and examples.

b.Auctions : first price, second price, English and Dutch auctions.

c.The revenue equivalence theorem in auctions.

d.Double auction.

5. Dynamic games of incomplete information

a.Introduction to perfect Bayesian equilibrium and sequential equilibrium.

b.Signalling games: job market signalling, limit pricing under asymmetric information.

c.Reputation in a finitely repeated prisoner's dilemma.

6. Cooperative Games

a.Nash Bargaining Solution

b.Concept of the Core

c.Shapely Value.

Suggested Readings

1. Osborne, M. (2004) "An introduction to game theory" OUP New Delhi.

2. Gibbons, R. (1992) "Game theory for applied economists" Harvester Wheatsheaf, New York.

3. Kreps, D. (1990) "A course in Microeconomic theory" Prentice Hall of India.

4. Binmore, K. (1992) "Fun and Games: A Text on Game Theory" Lexington, Mass.: D. C. Heath & Co.

5. Fudenberg, D. and J. Tirole. (1991) "Game theory" MIT Press.

6. Osborne, M. and A. Rubinstein (1994) "A course in game theory" MIT Press.

Apart from the above readings some journal articles will be referred to from time to time during the lectures.

All the books and journal articles are available at the EXIM BANK Library.