

SOUTH ASIAN UNIVERSITY
Faculty of Economics
M.A. (Development Economics)
Microeconomics II
Semester II (Winter Semester)

4 credits

Objective: The course aims at training students in the basic concepts of non-cooperative game theory, imperfect competition models (with emphasis on oligopoly theory) and economics of information. This course will provide students an advanced perspective on microeconomic issues in market structure and contract design, which is essential for designing intelligent economic policies.

Topics:

1. NON-COOPERATIVE GAME THEORY

- a. Static Games of Complete Information:
 - i. *Normal form and extensive form representation of games*
 - ii. *Solution concepts of Iterated Elimination of Strictly Dominated Pure Strategies, Nash equilibrium in pure strategies, Nash equilibria in mixed strategies*
- b. Dynamic Games of Complete Information:
 - i. *Solution concept of Sub-game Perfection*
 - ii. *Credible threats in dynamic games*
- c. Static Games of Incomplete Information:
 - i. *Solution concept of Bayesian Nash equilibria*
- d. Dynamic Games of Incomplete Information:
 - i. *Solution concept of Perfect Bayesian Nash equilibria (PBNE)*
 - ii. *Applications in signalling games*

2. IMPERFECT COMPETITION

- a. Monopoly pricing
- b. Introduction to oligopoly theory
- c. Cournot (quantity) and Bertrand (price) competition models: game theoretic interpretation of the models
- d. Stackelberg leadership model: game theoretic interpretation of the model
- e. Competition issues in oligopolistic markets

3. ECONOMICS OF INFORMATION

- a. Introduction to the principal-agent models
- b. Models of adverse selection:
 - i. *Rent extraction and efficiency trade-off in some applications: job contracting model, buyer-seller model with private information about buyer types and credit rationing in banking*
 - ii. *Full information incentive contracts*
 - iii. *Optimal contracts with asymmetric information: Revelation principle*
 - iv. *Signalling and screening models*

- v. *Modelling risk profiles of principal and agent in adverse selection problems*
- c. Models of moral hazard:
 - i. *Rent extraction and efficiency trade-off: two effort levels*
 - ii. *Risk neutrality and first best implementation*
 - iii. *Risk aversion: trade-off between insurance and efficiency*
 - iv. *Moral hazard and the theory of the firm*

References:

Core Texts

1. Varian, H.R., *Microeconomic Analysis*, 3rd edition, W.W. Norton, 1992
2. Mas-Colell, A., M.D. Whinston and J.R. Green, *Microeconomic Theory*, Oxford University Press, 1995

Additional Topic-wise References

1. **Non-cooperative Game Theory:**

- i. Gibbons, R., *Game Theory for Applied Economists*, Princeton University Press, 1992
- ii. Osborne, M.J. and Rubinstein, A., *A Course in Game Theory*, MIT Press, 1994

2. **Imperfect Competition:**

- i. Xavier, V., *Oligopoly Pricing: Old Ideas and New Tools*, MIT Press, 2001
- ii. Tirole, J., *The Theory of Industrial Organization*, MIT Press, 1988

3. **Economics of Information:**

- i. Laffont, J.-J., and D. Martimort, *The Theory of Incentives: The Principal Agent Model*, Princeton University Press, 2002.
- ii. I. Macho-Stadler and J.D. Perez-Castrillo, *An Introduction to the Economics of Information: Incentives and Contracts*, Oxford University Press, 2001
- iii. Salanie, B., *The Economics of Contracts: A Primer*, MIT Press, 2005