Game Theory for Economists - Web course

COURSE OUTLINE

Game theory is a study of strategic interaction among multiple players.Such multi-person decision problems are very common in economics, e.g., models of oligopoly, bargaining, auctions, etc.

The objective of this course is to provide a rigorous introduction to game theory and its applications in economics.

COURSE DETAIL

Module	Topics	No. of Lectures
1.	**Introduction to game theory** 1. Motivation and examples	2
2	**Static games of complete information** 1. Normal form representation of games 2. How to solve a game? i. Method of iterated elimination of strictly dominated strategies. ii. Nash equilibrium. 3. Zero-sum games 4. Applications i. Cournot and Bertrand models of duopoly ii. Tragedy of commons iii. Natural monopoly	7
3	**Dynamic games of complete information** 1. Extensive form representation of games 2. Games of perfect and imperfect information 3. Method of backward induction 4. Sub-game perfect Nash equilibrium 5. Finitely and infinitely repeated games 6. Applications i. Stackelberg model of duopoly	11

NPTEL

http://nptel.iitm.ac.in

Humanities and Social Sciences

Additional Reading:

1. Game Theory with Economic Applications by Bierman, Fernandez. Addison-Wesley.

2. Strategy: An Introduction to Game Theory by Watson. W. W. Norton & Co.

Coordinators:

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	ii. Bank runs		
	iii. Tournaments		
	iv. Patent race		
4	**Static games of incomplete information**	8	
	1. Static Bayesian Nash equilibrium		
	i. Motivation		
	ii. Normal form representation of static Bayesian games		
	iii. Definition		
	2. Auctions		
	i. First-price auction		
	ii. Second-price auction		
	iii. Double auction		
	3. Revelation principle and mechanism design		
5	**Dynamic games of incomplete information**	12	
	1. Perfect Bayesian Nash equilibrium		
	2. Signaling games		
	3. Moral hazard		
	4. Principal agent model		
	5. Adverse selection		
	6. Applications		
	i. Job market signaling		
	ii. Used car markets		
	Total	**40**	

References:

1. Game Theory for Applied Economists by Gibbons. Princeton University Press.

2. Strategies and Games: Theory and Practice by Dutta. MIT Press.