

Generic Elective (GE-18): Game Theory and Social Sciences

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
IV/VI/VIII	Game Theory and Social Sciences – ECON068	4	3	1	0	Class 12th Pass	Knowledge of Class XII Standard Mathematics

Learning Objectives

The Learning Objectives of this course are as follows:

- This course will teach the basic elements of game theory with applications to political science and other social sciences.
- It will coversimultaneous games, extensive-form games, repeated games, and spatial models of elections.
- The course will also focus on using the logic of games to make inferences and arguments about political and social behavior, with readings on collective action, voting, bargaining, repeated interaction, war, and other FinalExamples.

Learning outcomes

The Learning outcomes of this course are as follows:

- The students will learn how to apply multi-person decision making in an interactive setting.
- They will understand how to formulate different real-life situations as games and learn to predict the optimal strategies of players and how the players can exploit strategic situations for their own benefit.
- They will solve basic and intermediate games, including simultaneous-move and extensive-form games, as well as basic games of asymmetric information.
- The students can create and solve an original model designed to understand a social or political problem of interest.

Syllabus

UNIT I: Rational choice; interacting decision-makers; the normal/strategic form (9 hours)

UNIT II: Dominant and dominated strategies; rationalizability; iterated elimination of dominated strategies; dominance solvability; best response functions; Nash equilibrium. (12 hours)

UNIT III: Extensive-form and simultaneous game, Strategic game and its application in social sciences, electoral competition; the war of attrition, auctions; accident law; mixed strategies; finding mixed strategy equilibria;symmetricgamesandsymmetricequilibria;illustrations:reportingacrime;expertdiagnosis (12 hours)

UNIT IV: Strictly competitive equilibrium and maximization (12 hours)

Recommended readings

- Martin J. Osborne, *An Introduction to Game Theory*, Oxford University Press, New Delhi,2004.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.