Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
MAT343	Game Theory	5	3	0	0	4	6

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Elective
Course Level	Bachelor Degree
Objective	

Content	INTRODUCTION TO GAME THEORY 1. Introduction 1.1 Defining Games 1.2 Nash Equilibrium 1.3 Strategic Reasoning 1.4 Best Response and Nash Equilibrium 1.5 Nash Equilibrium of Examples Games 1.6 Dominant Strategies 1.7 Pareto Optimality 2. Mixed-Strategy Nash Equilibrium 2.1 Mixed Strategies and Nash Equilibrium 2.3 Computing Mixed Nash Equilibrium 2.4 Hardness Beyond 2x2 Games 2.6 Examples: Mixed Strategy Nash 3. Alternate Solution Concepts 3.1 Beyond the Nash Equilibrium 3.2 Strictly Dominated Strategies and Iterative Removal 3.3 Maxmin Strategies 3.4 Correlated Equilibrium 4. Extensive-Form Games 4.1 Formalizing Perfect Information Extensive Form Games 4.2 Perfect Information Extensive Form Strategies, BR, NE 4.3 Subgame Perfection 4.4 Backward Induction 4.5 Imperfect Information Extensive Form: Definitions, Strategies 4.6 Mixed and Behavioural Strategies 5. Repeated Games 5.1 Infinitely Repeated Games : Utility 5.2 Stochastic Games 5.3 Learning in Repeated Games 5.4 Equilibria of Infinitly Repeated Games 5.5 Discounted Repeated Games 6. Bayesian Games 6.1 Bayesian Games: Definitions 6.4 Analysing Bayesian Games 6.5 Analysing Bayesian Games: Example 7. Coalitional Games 7.1 Coalitional Game Theory 7.2 Coalitional Game Theory: Definitions 7.3 The Shapley Value 7.4 The Core
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Theory Topics

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