**Content**

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
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| ECON311 | Game Theory | 5 | 3 | 0 | 0 | 3 | 5 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | Turkish |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | This course aims to provide basic knowledge and familiarity with the concepts and methods in game theory, which is of importance in natural and social sciences. Another objective is to enable the students to implement game theoretic reasoning to economic and social issues. |
| Content | This course offers an overview of the principal solution concepts and applications of game theory. Game theory is widely used in social sciences to analyse strategic interactions in a variety of contexts. The actions taken by others, competitors, buyers, suppliers, regulators and such, affect companies' market and non-market opportunities. When making decisions companies thus need to anticipate the actions taken by others. Game theory is a methodological tool best suited at analysing such interactions. The course consists of two parts. First, it introduces the principal solution concepts used in game theoretical models (dominance, Nash equilibrium concept, sub-game perfection and sequential equilibria), then it studies applications of game theory in a number of areas, such as bargaining, signaling, spatial models. |
| References | A. Dixit and B. Nalebuff. Thinking Strategically, Norton 1991<br>J. Watson. Strategy: An Introduction to Game Theory, Norton 2002<br>P.K. Dutta. Strategies and Games: Theory And Practice, MIT 1999<br>G. Demange et J.-P. Ponsard Théorie des Jeux et Analyse Economique, 1994<br>Bierman and Fernandez, Game Theory with Economic Applications, Second Edition, Addison Wesley (1998).<br>Fudenberg and Tirole, Game Theory, MIT Press (1991).<br>Gibbons, Game Theory for Applied Economists, Princeton University Press (1992).<br>Krishna, Auction Theory, Academic Press (2002). |

**Theory Topics**

| Week | Weekly Contents |
|---|---|
| 1 | Introduction and examples |
| 2 | Static games under perfect information-Representation by normal form |
| 3 | Dominant strategy equilibrium and Rationalization |
| 4 | Variable sum games and pure strategy Nash equilibrium |
| 5 | Nash equilibrium applications |
| 6 | Mixed strategy Nash equilibrium-Applications |
| 7 | Static games under imperfect information-Asymmetric information |
| 8 | Dynamic games under perfect information-Dynamic games under perfect and complete information-Extensive form games-Backward induction |
| 9 | Credibility-Commitment |
| 10 | Dynamic games under complete and imperfect information-Subgame perfect equilibrium-Applications |
| 11 | Bayesian games-Bayesian Nash equilibrium |
| 12 | Perfect Bayesian equilibrium |
| 13 | Signalling games and applications |
| 14 | Signalling games and applications |