

Course descriptor

Title of the course	Microeconomics 2 (Advanced Level)		
Title of the Academic Programme	Master in Finance Master in Applied Economics and Mathematical Methods		
Type of the course	Elective, available to foreign students		
Prerequisites	Mathematics for Economists, undergraduate-level Microeconomics, Microeconomics I (Advanced level), Econometrics		
ECTS workload	6		
Total indicative study hours	Directed Study	Self-directed study	Total
	52	176	228
Course Overview	<p style="text-align: center;">Course description</p> <p>The main purpose of the course “Microeconomics 2” is to develop the competence of students in Microeconomics, with an especial attention to decision-making models including game theory and social choice theory. The main question for such problems is how to aggregate individual interests into the unique social or group one. To answer on this question different concepts of fairness are applied and characterized. The course begins with the simplest game-theoretic models with two participants and then develops to more complicated n-person, dynamic and cooperative games. Another part of the course is devoted to social choice theory mainly to voting problems. The problems of existence optimal solutions and their finding are studied with the help of the modern mathematical methods.</p>		
Intended Learning Outcomes (ILO)	<p>As the result, the student should know:</p> <p>Based competitive economics models; Optimality concepts on conflict situations and their characterizations; Methods of finding optimal behaviour in some classes of strategic games; Cost/profit sharing methods; Voting models.</p>		

Indicative Course Content	<p>Topic 1. The subject and methods of game theory. Conflicts and cooperation, their mathematical models. Topic 2. Matrix games. Saddle points. Mixed strategies. Minimax Theorem. Topic 3. Infinite two-person zero-sum games. Existence theorems Topic 4. Non-cooperative n-person games. Optimality concepts in non-cooperative games, equilibrium. Game-theoretic models of oligopolies. Auctions. Topic 5. The mixed extension of non-cooperative games. Nash's Theorem on existence of equilibria in mixed strategies in finite n-person games. Topic 6. Refinements of equilibria. Perfect equilibria, strong equilibria, correlated equilibria. Topic 7. Games with incomplete information. Bayesian equilibria. Topic 8. Games in extensive form. Zermelo's Theorem on the existence of pure equilibria in finite extensive games with perfect information. Behavioral strategies Kuhn's Theorem. Topic 9. Dynamic games. Stochastic and recursive games. Repeated games with complete information. Topic 10. Cooperative games with transferable utilities. Characteristic functions. Solutions of cooperative games. The core and its existence. The Shapley value. Topic 11. Cost and profit sharing rules. Egalitarian and utilitarian rules. Topic 12. Bargaining problems. Axiomatic characterizations of bargaining solutions. Topic 13. Social welfare functions. Arrow's Theorem and its extensions. Topic 14. Voting theory. Manipulation of preferences.</p>
Teaching and Learning Methods	The course consists of lectures (28 hours) and tutorials (24 hours). The tutorials involve contemporary papers discussion and problems solving.
Indicative Assessment Methods and Strategy	Students' progress will be measured by students' in-class tests and class participation (20% of the final grade), home assignments (20%), and a final exam. The final exam will take the form of a 2-hour written test that amounts to 60% of the final grade.
Readings / Indicative Learning Resources	<p><u>Mandatory</u></p> <ol style="list-style-type: none"> 1. Peleg B., Sudholter P. (2007) Introduction to the theory of cooperative games. Berlin, Springer-Verlag. 2. Maschler M., Solan E., Zamir S. "Game Theory", Cambridge University Press, 2013. — 1009 p. — ISBN: 1107005485, 9781107005488 3. Mertens J.-F., Sorin S., Zamir S. "Repeated Games (Econometric Society Monograph)", 2015.
Course Instructor	Associate professor: Elena Yanovskaya, Professor, School of Economics