

Course title	Game Theory and Decision Making
Course code	BMA472
Type of course	Elective
Level of course	Graduate
Year of study	First (1 st)
Semester	Second (2 nd)
ECTS credits	5
Name of lecturer(s)	Professor Pavlos Peppas
Aim of the course	<p>Rationality is clearly the pillar of any decision making process. In this course we study the process of rational reasoning and decision making as modeled by two distinct and yet related areas: Game Theory and Formal Logic. Game Theory studies the process of rational decision making in a competitive environment. For example, the strategic decisions of a firm are effected by the actions of its competitors, which in turn take into consideration the possible moves of their own competitors in their decision making. Such interactions between competitors in the process of strategic decision making is common in the business world. Game Theory studies these type of scenarios and helps us improve our understanding of the different parameters that came into play in competitive decision making. Formal Logic on the other hand studies the validity of arguments based on their form rather than their content. The aim of this course is to present students with the basic models and results from Game Theory, and Formal Logic. The emphasis however will be on Game Theory.</p>

Learning outcomes	<p>At the end of this course the student will be able to:</p> <ul style="list-style-type: none"> • Encode scenarios of decision making in the presence of competition as Game Theory Problems. • Understand the main concepts and techniques from Game Theory. • Understand and interpret the solutions provided by the models of Game Theory.
	<ul style="list-style-type: none"> • Understand the principals of correct reasoning. • Understand and assess the validity of complex arguments.
Competences	<p>At the end of this course the student will have acquired the skill of identifying situations that can be approached through Game Theory, and will have improved the quality of her/his decision making in the presence of competition. Moreover, the student will be able to distinguish between valid and invalid arguments and will enhance his skill of composing complex, wellfounded arguments.</p>
Prerequisites	<p>There are no prerequisite courses.</p>
Course contents	<p>In this course we study the main models and results from Game Theory, focusing more on applications. In particular the topics we examine include:</p> <ul style="list-style-type: none"> • games with sequential moves • games with simultaneous moves • mixed strategies • auctions • voting • formal systems • propositional logic

<p>Recommended reading</p>	<p>R. Gibbons, “Εισαγωγή στην Θεωρία Παιγνίων”, Εκδόσεις Gutenberg, 2009.</p> <p>H. Enderton, A Mathematical Introduction to Logic, Harcourt/Academic Press, 2001.</p> <p>A. Dixit and S. Skeath, “Games of Strategy”, Norton & Company, 2004.</p> <p>J. Watson “Strategy: An Introduction to Game Theory”, Norton & Company, 2007.</p> <p>E. J. Lemmon, Beginning Logic, Chapman and Hall, 1997.</p>
<p>Teaching and learning methods</p>	<p>Lectures.</p>
<p>Assessment and grading methods</p>	<p>The grade is determined by the final written exam. Greek grading scale: 1 to 10. Minimum passing grade: 5</p>
<p>Language of instruction</p>	<p>Greek.</p>