

DESCRIPTION OF THE COURSE OF STUDY

Course code	0719-2ID-F69-TG	
Name of the course in	Polish	Teoria gier
	English	Game theory

1. LOCATION OF THE COURSE OF STUDY within the system of studies

1.1. Field of study	Data Engineering
1.2. Mode of study	Full-time
1.3. Level of study	First-cycle, Engineering degree
1.4. Profile of study*	General Academic
1.5. Person/s preparing the course description	Dr Magdalena Nowak
1.6. Contact	magdalena.nowak@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE course of study

2.1. Language of instruction	Polish
2.2. Prerequisites*	Basics of Mathematics, Mathematics I, Mathematics II, Probability Theory

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lectures	
3.2. Place of classes	UJK teaching facilities	
3.3. Form of assessment	Graded credit	
3.4. Teaching methods	Problem-based lecture, discussion	
3.5. Bibliography	Required reading	Barron, E. N. (2013). <i>Game Theory: An Introduction</i> (3rd ed.). Loyola University Chicago.
	Further reading	Nisan, N., Roughgarden, T., Tardos, É., & Vazirani, V. V. (2007). <i>Algorithmic Game Theory</i> . Cambridge University Press.

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1.	Course objectives (including form of classes) C1. To introduce students to the basic models of game theory as tools for describing cases of conflict of interest. C2. To prepare students to resolve conflicts expressed in the language of game theory. C3. To foster a critical attitude towards the results of one's own work and that of others.	
4.2.	Detailed syllabus (including form of classes) Lectures 1. <i>Conflict of Interest in Economic Activity: A Game-Theoretic Perspective</i> 2. <i>Games in Strategic Form: Pure and Mixed Strategies, and Strategy Dominance</i> 3. <i>Equilibrium Strategies and Their Importance: The Nash Equilibrium</i> 4. <i>Two-Player Games</i> 5. <i>Zero-Sum and Non-Zero-Sum Games</i> 6. <i>Evolutionary Games: Evolutionary Scenarios and Evolutionarily Stable Strategies</i> 7. <i>Cooperative Games</i> 8. <i>The Shapley Value</i> 9. <i>Negotiations within Games</i>	

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	Recognizes typical examples of conflicts of interest and relates them to appropriate game-theoretic models.	#D1A_W01 #D1A_W02
W02	Describes the consequences for a player of choosing a strategy, coalition, or course of action.	#D1A_W01
W03	Is aware of the limitations of the applicability of game-theoretic models.	#D1A_W01

within the scope of ABILITIES:		
U01	Differentiates and selects the appropriate game-theoretic model in its typical applications.	ID1A_U05
U02	Constructs a game-theoretic model based on collected information regarding a straightforward conflict situation.	ID1A_U05 ID1A_U08
U03	Uses a game-theoretic model as an analytical and decision-making tool—from the perspective of a player, a coalition, and all participants in the game.	ID1A_U05 ID1A_U08
within the scope of SOCIAL COMPETENCE:		
K01	Maintains a critical attitude towards the outcomes of one's own work and the work of others.	ID1A_K01

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes (code)	Method of assessment (+/-)																				
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes		
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...
W01				+																	
W02				+																	
W03				+																	
U01				+																	
U02				+																	
U03				+																	
K01										+											

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes

Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	Achievement of <50–60% of the requirements applied in the assessment methods
	3,5	Achievement of <60–70% of the requirements applied in the assessment methods
	4	Achievement of <70–80% of the requirements applied in the assessment methods
	4,5	Achievement of <80–90% of the requirements applied in the assessment methods
	5	Achievement of <90–100% of the requirements applied in the assessment methods

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	30	
Participation in lectures*	30	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	20	
Preparation for the lecture*	5	
Preparation for the exam/test*	15	
TOTAL NUMBER OF HOURS	50	
ECTS credits for the course of study	2	

*delete as appropriate

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)

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