

Subject card

Subject name and code	Optimization Modeling for Logistics, PG_00181359						
Field of study	Optimization Modeling for Logistics						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Master's studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Econometrics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Sabina Nowak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Additional information:						
	This course will be offered in English online.						
	Wykład do wyboru będzie przeprowadzony w formule online w języku angielskim.						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	15		1.0		34.0	50
Subject objectives	Students will be able to choose an appropriate model type to match the real situation. Students will be able to create mathematical models of several types. Students will be able to express models in a mathematical programming language.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[IiEMU2_W02] The student comprehends advanced theoretical and practical concepts in econometrics, informatics, or statistics, which are essential for a deeper understanding of economic and social phenomena.	Students will be able to choose an appropriate model type to accurately reflect the situation.	[SW4] test/egzamin - ustny lub pisemny
	[ZARZMU2_U07] Students can create detailed written papers, including reviews, analyses, or research, along with presentations and oral discussions on management topics.	Students will be able to write complex models in mathematical notation, using a modern mathematical modeling language.	[SU4] test/egzamin - ustny lub pisemny
	[IiEMU2_U07] Students can prepare detailed written papers, presentations, and oral speeches on econometrics, informatics, or statistics issues.	Students will be able to write complex models in mathematical notation, using a modern mathematical modeling language.	[SU4] test/egzamin - ustny lub pisemny
	[FiRMU2_W02] The student possesses a comprehensive understanding of the complexities and functions of both domestic and international financial markets, as well as financial instruments and institutions.	Students will be able to choose an appropriate model type to accurately reflect the situation.	[SW4] test/egzamin - ustny lub pisemny
	[ZARZMU2_W02] The student has an in-depth knowledge and understanding of various organizations, including their complexities, functional areas, internal processes, and their interactions with the environment.	Students will be able to choose an appropriate model type to accurately reflect the situation.	[SW4] test/egzamin - ustny lub pisemny
	[FiRMU2_U07] Students can create detailed written papers, including reviews, analyses, or research papers, along with presentations and oral speeches on finance and accounting topics.	Students will be able to write complex models in mathematical notation, using a modern mathematical modeling language.	[SU4] test/egzamin - ustny lub pisemny
Subject contents	1. Linear programming models 2. Modeling in the ampl language 3. Transportation problems 4. Personnel scheduling problems 5. Multiperiod planning problems 6. Integer linear programming 7. Fixed costs in lps 8. Set covering problems 9. Either-or and if-then constraints 10. Scheduling problems 11. Logistics problems 12. Carrier of post problems 13. Traveling salesperson problems		
Prerequisites and co-requisites	N/A		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written assessment	51.0%	100.0%
Recommended reading	Basic literature	Operations Research: Wayne L. Winston, Applications and Algorithms, fourth edition, Thompson/Brooks Cole, 2004. Text will be made available as pdf during the course.	
	Supplementary literature	Robert Fourer, David M. Gay, and Brian W. Kernighan, AMPL: A Modeling Language for Mathematical Programming, second edition.	
	eResources addresses	Supplementary https://ampl.com/resources/books/ - Robert Fourer, David M. Gay, and Brian W. Kernighan, AMPL: A Modeling Language for Mathematical Programming, second edition.	
Example issues/ example questions/ tasks being completed	N/A		

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