

**Subject card**

<b>Subject name and code</b>	Optimization Modeling for Logistics, PG_00181359						
<b>Field of study</b>	Finance and Accounting, Informatics and Econometrics, Management						
<b>Date of commencement of studies</b>	October 2026		<b>Academic year of realisation of subject</b>			2026/2027	
<b>Education level</b>	Master's studies		<b>Subject group</b>			Optional subject group	
<b>Mode of study</b>	full-time studies		<b>Mode of delivery</b>			at the university	
<b>Year of study</b>	1		<b>Language of instruction</b>			Polish	
<b>Semester of study</b>	1		<b>ECTS credits</b>			2.0	
<b>Learning profile</b>	academic		<b>Assessment form</b>			credit	
<b>Conducting unit</b>	Department of Econometrics -> Faculty of Management -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Sabina Nowak				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	15		1.0		34.0	50
<b>Subject objectives</b>	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
	[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/exam - oral or written
	[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/exam - oral or written
	[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/exam - oral or written
	[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/exam - oral or written
	[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/exam - oral or written
	[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/exam - oral or written
Subject contents	<ol style="list-style-type: none"> <li>1. Linear programming models</li> <li>2. Modeling in the ampl language</li> <li>3. Transportation problems</li> <li>4. Personnel scheduling problems</li> <li>5. Multiperiod planning problems</li> <li>6. Integer linear programming</li> <li>7. Fixed costs in lps</li> <li>8. Set covering problems</li> <li>9. Either-or and if-then constraints</li> <li>10. Scheduling problems</li> <li>11. Logistics problems</li> <li>12. Carrier of post problems</li> <li>13. Traveling salesperson problems</li> </ol>		
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		
Example issues/ example questions/ tasks being completed	N/A		
Work placement	Not applicable		

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