Course syllabus

1. Core data

Course code	Credits	Semester
293NMATK600M	6	2024/25/2
Course title in Hungarian		
Quantitative methods		
Course title in English		
Quantitative methods		
Course title in other language		

Course leader	Institute
Ábele-Nagy Kristóf	Institute of Operations and Decision Sciences
Language of instruction	**Type of final assessment**
English	Exam
Number of theoretical classes per week (full-time programmes)	**Number of practical classes per week (full-time programmes)**
2	2
Number of theoretical classes per semester (part-time programmes)	**Number of practical classes per semester (part-time programmes)**
0	0
Available for preferential study schedule	
No	

2. Main features

Course objectives
The purpose of the course is to provide a sound conceptual understanding of several quantitative models and methods which are frequently and successfully applied in managerial decision making; and more generally, to demonstrate the possibilities and limitations of the quantitative approach in the analysis of decision situations.
Brief description of the course
Model building, linear and integer programming, sensitivity analysis, project scheduling, decision models, non-cooperative game theory, inventory models.
Relationship with other courses of the programme

3. Learning outcomes

Skill	Knowledge	Attitude	Autonomy and Responsibility
Aware of the power and usefulness, but also the possible pitfalls of using quantitative methods in the analysis and solution of complex decision situations	Able to recognize the situations that can be analyzed using quantitative methods.	Accurate consideration of limitations. Precise application of algorithms. Accurate interpretation of the results.	Formulating models. Consideration of solution method pitfalls and specialties. Interpretation of all relevant data and the solution.
	Able to solve relevant quantitative models.		
	Able to recognize the boundaries of applications of quantitative models.		
Able to build simple mathematical models most appropriate for the available data.	Able to build basic linear programming models for optimization.		
	Able to build basic integer programming models for		

Cognizant of the solution techniques available to solve the appropriate models.	Able to utilize graphical solution for basic models.		
	Cognizant of computer solution for more advanced models.		
	Able to solve simple models.		
Able to make sense of the computer outputs, and to perform what-if analysis.	Able to interpret computer solution outputs.		
	Able to conduct sensitivity and what-if analysis.		

4. Mandatory readings

Required literature	URL
Lawrence J. A. and Pasternack B. A.: Applied Management Science: Modeling, Spreadsheet Analysis, and Communication for Decision Making, 2nd Edition, selected chapters. Wiley, 2002.	
Winston, Wayne L., and Jeffrey B. Goldberg. Operations Research: Applications and Algorithms, selected chapters. Belmont, CA: Thomson/Brooks/Cole, 2004.	