<div align="center">**Course description**
Spreadsheet Modeling in Economics</div>

1. Course name, ECTS, quarter/semester, contact hours
Spreadsheet Modeling in Economics, 3 ECTS, 4 quarter, 42 contact hours

2. Authors of the course
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3. Outline
    Managerial decisions are increasingly based on quantitative models from the discipline of management science. Management science techniques are widely used in manufacturing, marketing and finance. This course is designed to introduce students to the various ways of modeling decision problems in order to enhance decision-making skills. Fundamental topics of management science are covered including linear programming, integer programming, nonlinear optimization, network optimization, multiple criteria decision-making and applications of probability theory. In addition, some advanced Microsoft Excel functions useful for data management and data processing are studied.

    All classes take place in a computer lab, where students learn how to apply quantitative methods to real-life problems related to business analysis and economics using spreadsheets (in particular, Microsoft Excel). The emphasis will be on model formulation and interpretation of results, not on mathematical theory. The emphasis is on models that are widely used in diverse industries and functional areas.

4. Structure and content

№	Topic	Class hours	Self-study
1	Linear Programming	4	6
2	Integer Programming	4	6
3	Transportation and workforce scheduling problems	4	6
4	Network optimization	4	8
5	Nonlinear programming	4	8
6	Multiobjective Decision Making: Goal Programming and Analytic Hierarchy Process	4	6
7	Decision making under uncertainty	4	6
8	Markov Analysis	4	8
9	Advanced Microsoft Excel functions	12	18
	Total	42	68

5. Prerequisites
    Students are expected to know the basics of working with Excel spreadsheets. These include developing and copying formulas with relative and absolute cell addresses, and using the function and chart wizards. We also expect that students have taken courses in calculus, linear algebra, optimization methods, introductory microeconomics and macroeconomics.

6. Assessment

Type of testing	Form of testing	Details	Weight
Classwork	Problem sets	75-min. tests given at classroom every week. Each Problem Set consists of 2-5 problems. Classwork is assessed using the average grade across all 10 problem sets.	70%
Exam	Final test	75-minutes test covering all topics	30%