

SUBJECT:	<b>Optimization Methods in Economic Modelling</b>	
HOURS:	30 lectures +30 classes	ECTS: 5
semester		

Name/title of the author:	
Course Description:	The course discusses the most common optimization techniques in use in modern economic research. They are illustrated by examples of economic models.
Learning Outcomes (Goals and Objectives of the course):	The course is expected to provide students with the basic knowledge of the optimization methods in economic modelling, including unconstrained and constrained optimization, linear programming and the least squares method in three variants as well as in ability of analyzing the comparative statics in those cases. Each discussed method will be applied to the simple economic models from micro- or macroeconomics, allowing student to learn and analyze economic processes in rigorous theoretical approach.
Entrance qualifications:	Completed course in Mathematics
Course Content:	<ol style="list-style-type: none"> <li>1. Comparative statics in linear and nonlinear demand-supply models</li> <li>2. Unconstrained optimization <ol style="list-style-type: none"> <li>2.1 Local extrema</li> <li>2.2 Global extrema</li> </ol> </li> <li>3. The least squares method <ol style="list-style-type: none"> <li>3.1 linear model</li> <li>3.2 exponential model</li> <li>3.3 logarithmic model</li> </ol> </li> <li>4. Constrained optimization: <ol style="list-style-type: none"> <li>4.1 Lagrange multipliers and shadow prices</li> <li>4.2 Inequality constraints</li> <li>4.3 Linear programming</li> <li>4.4 Concave programming</li> </ol> </li> <li>5. Dynamic programming</li> <li>6. The Maximum Principle</li> <li>7. Uncertainty</li> </ol>
Assessment policy (examination):	project (analysis of scientific paper, chosen by student) exam (written)
Course materials/bibliography:	Dixit A.K. <i>Optimization in economic theory</i> , Oxford University Press 2009
Methods of Instruction:	lecture tutoring e-learning
Notes / suggestions:	