

**(Table 5.2) Course unit description**

Study program: Economics			
Type and level of studies: Doctoral Studies			
<b>Course unit: Quantitative Methods in Economics and Management</b>			
<b>Teacher in charge: Mikica Drenovak</b>			
Language of instruction: English			
ECTS: 9			
Prerequisites:			
Semester: II			
<b>Course unit objective:</b> The course provides an introduction to the quantitative methods and modeling techniques used in modern economics and management. The objective of the course is to equip students with the mathematical toolkit required for later coursework.			
<b>Learning outcomes of Course unit</b> Students are expected to acquire knowledge on proposed quantitative methods and models and demonstrate the ability to implement them for solving complex problems recognized in economic theory and practice.			
<b>Course unit contents</b> Quadratic Forms and Definiteness, Eigenvalues and Eigenvectors, Projections, Quasi-Concavity and Quasi-Convexity, Multivariate random variables, Small and Large Sample Properties of Estimators, Classes of Estimators. Static optimization: Unconstrained Optimization, Constrained Optimization, Lagrange Method, Kuhn-Tucker Method, Saddle Point Method, Correspondences and fixed points, Regularity and Sensitivity Analysis.			
<b>Literature</b>			
<ul style="list-style-type: none"> <li>• N. Schürhoff, <i>Mathematics for Economics and Finance</i>, University of Lausanne, 2015.</li> <li>• C. P. Simon, L. Blume, <i>Mathematics for Economists</i>, W. W. Norton &amp; Comp., New York, 1994.</li> <li>• K. Sydaeter, P. Hammond, A. Seierstad, A. Strom, <i>Further Mathematics for Economic Analysis</i>, PrenticeHall, London, 2005.</li> <li>• Yu. A. Shashkin, <i>Fixed Points</i>, American Mathematical Society, Providence, 1991.</li> <li>• B. Render, R.M. Star, Jr., M.E. Hana, <i>Quantitative Analysis for Management</i>, Prentice Hall, 2009.</li> </ul>			
<b>Number of active teaching hours</b>			<b>Other classes</b>
Lectures	Practice	Other forms of classes	
<b>Teaching methods Consultations, Mentoring</b>			
<b>Examination methods (maximum 100 points)</b>			
<b>Exam prerequisites</b>	<b>No. of points:</b>	<b>Final exam</b>	<b>No. of points:</b>
Student's activity during lectures			70
practical classes/tests			
Seminars/homework			
Project			30
Other			
<b>Grading System</b>			
<b>Grade</b>	<b>Bo. Of Points:</b>		<b>Description</b>
<b>10</b>	<b>91-100</b>		Excellent

<b>9</b>	<b>81-90</b>	Exceptionally good
<b>8</b>	<b>71-80</b>	Very good
<b>7</b>	<b>61-70</b>	Good
<b>6</b>	<b>51-60</b>	Passing
<b>5</b>	<b>0-50</b>	Failing