

<b>Study programme(s):</b> Applied Mathematics (MB), Mathematics (MA)				
<b>Level:</b> master				
<b>Course title:</b> Decision theory (MB-21)				
<b>Lecturer:</b> Prof. Dr. Endre E. Pap				
<b>Status:</b> elective				
<b>ECTS:</b> 5				
<b>Requirements:</b> none				
<b>Learning objectives</b> Mastering the basics of classical and contemporary theories of decision making.				
<b>Learning outcomes</b> Acquired basic concepts and methods of decision theory and training in their use.				
<b>Syllabus</b> <i>Theoretical instruction</i> Classical decision theory. Decision under uncertainty. Von Neuman-Morgenstern theory. Aggregation function (basic properties and representations). Fuzzy systems. Non-additive measures and corresponding integrals (Choquet, Sugeno and pseudo-additive). Comonotonicity of Choquet and Sugeno integrals. <i>Practical instruction</i> Application of decision tree in economy, industry, etc. Modelling with probability. Application of different types of aggregation functions, e.g. triangular norms and conforms in fuzzy systems. Multi-criteria decision, with non-additive integrals.				
<b>Literature</b> 1. E. Pap, Fazi mere i njihova primena, Univerzitet u Novom Sadu, PMF, Novi Sad, 1999. 2. M. Grabisch, J. L. Marichal, R. Mesiar, E. Pap, Aggregation Functions, Cambridge University Press, Encyclopaedia of Mathematics and its Applications 127, 2009, 478 pp. 3. D. Pavličić, Teorija odlučivanja, Ekonomski fakultet, Beograd, 2004.				
<b>Weekly teaching load</b>				Other: 0
Lectures: 2	Exercises: 2	Other forms of teaching: 0	Student research: 0	
<b>Teaching methodology</b> Lectures are presented using classical teaching methods and supported by beamer presentations. Exercises are used to practise and analyse typical problems and their solutions. The ability of application of theoretical knowledge is checked through independently managed seminar work and its defence, where a student is supposed to demonstrate general understanding of the presented theoretical material.				
<b>Grading (maximum number of points 100)</b>				
<b>Pre-exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Seminar work	50	Seminar work defence	40	
Active participation in exercises and homework	10			