

Study programme(s): Mathematics (MD)				
Level: PhD studies				
Course title: Algebras of generalized functions (AN-01)				
Lecturer: Dora Seleši				
Status: elective				
ECTS: 10				
Requirements:				
Learning objectives				
Fundamental understanding of the relationship between classical and generalized functions.				
Learning outcomes				
<i>Minimal:</i>				
Relationship between Schwartz distributions and Colombeau generalized functions.				
<i>Desirable:</i>				
Acquiring knowledge for solving nonlinear differential equations.				
Syllabus				
Distributions, operations, structures. Colombeau generalized functions. Different types of associatedness, generalized differential operators, Fourier transform, generalized functions on manifolds. Microlocal analysis.				
Literature				
<ol style="list-style-type: none"> 1. Grosser, Michael; Kunzinger, Michael; Oberguggenberger, Michael; Steinbauer, Roland, <i>Geometric theory of generalized functions with applications to general relativity</i>. Mathematics and its Applications, 537. Kluwer Academic Publishers, Dordrecht, 2001. xvi+505 pp. 2. Nedeljkov, M., Pilipović, S., Scarpalezos, D., <i>Linear Theory of Colombeau's Generalized Functions</i>, Addison Wesley, Longman, 1998. 				
Weekly teaching load				Other:
				0
Lectures:	Exercises	Other forms of teaching:	Student research:	
2	0	0	6	
Teaching methodology				
Plenary lectures, problem sessions, independent presentations carried out by students.				
Grading method (maximal number of points 100)				
Pre-exam obligations		points	Final exam	points
Colloquia		50	Oral exam	50