

<b>Study programme(s):</b> Mathematics (MD)				
<b>Level:</b> Ph.D.				
<b>Course title:</b> Group Theory (AL-12)				
<b>Lecturer:</b> Igor V. Dolinka				
<b>Status:</b> elective				
<b>ECTS:</b> 10				
<b>Requirements:</b> none				
<b>Learning objectives</b> Introduction of the basic concepts, results and techniques of group theory.				
<b>Learning outcomes</b> Upon completion of the course, the student should master the fundamental methods and notions which enable research work in the field of group theory.				
<b>Syllabus</b> Basic properties of groups. Properties of subgroups and normal subgroups, quotients and homomorphisms. Isomorphism and correspondence theorems. Direct and semidirect products of groups. Permutation groups and group actions. Sylow's theorems and their applications in the classification of finite groups. Normal and composition series. Solvable and nilpotent groups. Finitely generated Abelian groups and the Krull-Schmidt theorem. The extension problem, automorphism groups, wreath products. Simple groups; some classes of linear simple groups. Free groups and free products. Group presentations and the word problem. An introduction to algebraic topology: fundamental groups of complexes.				
<b>Literature</b> <ol style="list-style-type: none"> <li>1. J.J.Rotman, <i>An Introduction to the Theory of Groups</i>, , 4th edition, Springer-Verlag, New York, 1994.</li> <li>2. D.S.Dummit, R.M.Foote, <i>Abstract algebra</i>, Wiley, 1999.</li> <li>3. Kargapolov, M.I. and Merzlyakov, Yu.I.: <i>Fundamentals of the theory of groups</i>. Springer, 1979.</li> <li>4. M.Z.Grulović: <i>Osinvi teorije grupa</i>, Univerzitet u Novom Sadu, 1997.</li> </ol>				
<b>Weekly teaching load</b>				Other:
				0
Lectures: 2	Exercises 0	Other forms of teaching: 0	Student research: 6	
<b>Teaching methodology</b> Lectures, with active participation of the students, discussion, etc.				
<b>Grading method (maximal number of points 100)</b>				
<b>Pre-exam obligations</b>		<b>points</b>	<b>Final exam</b>	<b>points</b>
Colloquia		50	Oral exam	50