

<b>Study programmes:</b> PhD studies – Mathematics-Algebra			
<b>Course name:</b> Noncommutative Algebra			
<b>Lecturers:</b> Dragana Todoric, Zoran Petrovic			
<b>Status:</b> Optional			
<b>ECTS:</b> 9			
<b>Attendance prerequisites:</b> Algebra 4			
<b>Course aims:</b> Acquisition of general and advanced knowledge of noncommutative algebra			
<b>Course outcome:</b> Upon completion of the course, students have extended their knowledge of noncommutative ring theory. They understand the following notions: semisimple modules and rings, Jacobson radical, central simple algebras, central idempotents and block decomposition. Students know basic and more advanced theorems and main constructions from these fields. They are qualified to solve problems from the mentioned areas and follow advanced courses of algebra as well as current research from the field.			
<b>Course content: The Core of the course.</b> Basic concepts. Semisimple modules and rings, Artin-Wedderburn theorem, Jacobson radical, central simple algebras; Skolem-Noether theorem, double centralizer theorem, Wedderburn's and Frobenius theorem. Brauer group and relation with cohomology.			
<b>Optional chapters.</b> Primitive rings and density theorem. Representations of finite groups and Burnside's theorem. Global dimension of rings. Brauer group of a commutative ring.			
<b>Literature:</b> Benson Farb, R. Keith Dennis, <i>Noncommutative Algebra</i> , Springer-Verlag, New York, 1993. Lam, Tsi-Yuen, <i>A First Course in Noncommutative Rings</i> , 2nd ed., Springer-Verlag, New York 2001. T. Hungerford, <i>Algebra</i> , Algebra (Graduate texts in Mathematics) Springer 1st ed. 1974. Corr. 5th printing edition 2003. S. Lang, <i>Algebra</i> , Addison-Wesley Publ. Co., New York 1984. Robert B. Ash, <i>Abstract Algebra: The Basic Graduate Year</i> , www 2000.			
<b>Number of hours:</b> 10	<b>Lectures:</b> 4	<b>Tutorials:</b> 6	
<b>Teaching and learning methods:</b> Frontal / Interactive / Tutorials / Lectures / Exercises			
<b>Assessment (maximal 100 points)</b>			
<b>Course assignments</b>	<b>Points</b>	<b>Final exam</b>	<b>Points</b>
Lectures	-	Written exam	30
Exercises / Tutorials	-	Oral exam	30
Colloquia			
Essay / Project	40		