

UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2016/17)						
<b>Predmet:</b>		Izbrana poglavja iz algebre				
<b>Course title:</b>		Topics in algebra				
<b>Študijski program in stopnja</b> Study programme and level		<b>Študijska smer</b> Study field		<b>Letnik</b> Academic year	<b>Semester</b> Semester	
Doktorski študijski program Matematika in fizika		Matematika		1 ali 2	prvi ali drugi	
Doctoral study programme Mathematics and Physics		Mathematics		1 or 2	first or second	
<b>Vrsta predmeta / Course type</b>				izbirni / elective		
<b>Univerzitetna koda predmeta / University course code:</b>				M3121		
<b>Predavanja</b> Lectures	<b>Seminar</b> Seminar	<b>Vaje</b> Tutorial	<b>Klinične vaje</b> work	<b>Druge oblike študija</b>	<b>Samost. delo</b> Individ. work	<b>ECTS</b>
30					150	6
<b>Nosilec predmeta / Lecturer:</b>		prof. dr. Matej Brešar, prof. dr. Jakob Cimprič, prof. dr. Primož Moravec, prof. dr. Peter Šemrl				
<b>Jeziki / Languages:</b>		<b>Predavanja / Lectures:</b> slovenski / Slovene, angleški / English				
		<b>Vaje / Tutorial:</b> slovenski / Slovene, angleški / English				
<b>Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:</b>				<b>Prerequisites:</b>		
Vpis v letnik študija.				Enrolment in the programme.		
<b>Vsebina:</b>				<b>Content (Syllabus outline):</b>		

<p>Izbrane bodo nekatere standardne teme iz algebre. Možna poglavja so teorija grup, komutativna algebra, nekomutativna algebra, linearna algebra, Liejeve in druge neasociativne algebre, univerzalna algebra, urejene algebrske strukture itd.</p> <p>Izbira je lahko odvisna od interesov in raziskovalne usmeritve študentov.</p>	<p>The content consists of a selection of standard topics in algebra. Possible themes include group theory, commutative algebra, noncommutative algebra, linear algebra, Lie and other nonassociative algebras, universal algebra, ordered algebraic structures etc.</p> <p>The choice may depend on students' research interests.</p>
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**Temeljni literatura in viri / Readings:**

<p>I. M. Isaacs, Algebra: A Graduate Course, AMS, 1994.</p> <p>T. W. Hungerford, Algebra, Springer, 1974.</p> <p>S. Lang, Algebra, Springer, 2002.</p> <p>L. H. Rowen: Graduate Algebra: Noncommutative View, AMS, 2008.</p> <p>J. J. Rotman, Advanced modern algebra, AMS, 2010.</p>
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**Cilji in kompetence:**

<p>Namen predmeta je seznaniti študente z nekaterimi pomembnimi temami algebre.</p>
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**Objectives and competences:**

<p>The main goal of the course is to provide students with some important topics in algebra.</p>
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**Predvideni študijski rezultati:**

**Intended learning outcomes:**

Znanje in razumevanje predstavljenih konceptov.

Sposobnost uporabe pridobljenega znanja in spretnosti.

Knowledge and comprehension of presented concepts.

Ability to use acquired knowledge and skills.

**Metode poučevanja in učenja:**

Predavanja, konzultacije, reševanje problemov

**Learning and teaching methods:**

Lectures, consultations, problem sessions

**Načini ocenjevanja:**

Delež (v %) /

Weight (in %)

**Assessment:**

Pisni izpit (domače naloge), ustni izpit

Ocene: 1-5 (negativno), 6-10 (pozitivno)

100 %

Written exam (homeworks), oral exam

Grading: 1-5 (fail), 6-10 (pass)

**Reference nosilca / Lecturer's references:**

BREŠAR, Matej. Introduction to noncommutative algebra, (Universitext). Cham [etc.]: Springer, cop. 2014. XXXVII, 199 str. ISBN 978-3-319-08692-7. ISBN 978-3-319-08693-4. [COBISS.SI-ID 17143897]

BREŠAR, Matej, ŠPENKO, Špela. Functional identities of one variable. Journal of algebra, ISSN 0021-8693, 2014, vol. 401, str. 234-244. [COBISS.SI-ID 16842329]

BREŠAR, Matej. Algebras in which non-scalar elements have small centralizers. Linear and Multilinear Algebra, ISSN 0308-1087, 2015, vol. 63, no. 9, str. 1864-1871. [COBISS.SI-ID 17160537]

CIMPRIČ, Jaka. A Real Nullstellensatz for free modules. Journal of algebra, ISSN 0021-8693, 2013, vol. 396, str. 143-150. [COBISS.SI-ID 16912729]

CIMPRIČ, Jaka, SAVCHUK, Yurii, SCHMÜDGEN, Konrad. On q-normal operators and the quantum complex plane. Transactions of the American Mathematical Society, ISSN 0002-9947, 2014, vol.

366, no. 1, str. 135-158. [COBISS.SI-ID 16921177]

Jaka Cimprič:

JEZERNIK, Urban, MORAVEC, Primož. Bogomolov multipliers of groups of order 128. *Experimental mathematics*, ISSN 1058-6458, 2014, vol. 23, iss. 2, str. 174-180. [COBISS.SI-ID 17109593]

DELIZIA, Constantino, MORAVEC, Primož, NICOTERA, Chiara. Groups with all centralizers subnormal of defect at most two. *Journal of algebra*, ISSN 0021-8693, 2013, vol. 374, str. 132-140. [COBISS.SI-ID 16556889]

MORAVEC, Primož. Unramified Brauer groups of finite and infinite groups. *American journal of mathematics*, ISSN 0002-9327, 2012, vol. 134, no. 6, str. 1679-1704. [COBISS.SI-ID 16521305]

ŠEMRL, Peter. The optimal version of Hua's fundamental theorem of geometry of rectangular matrices. *Memoirs of the American Mathematical Society*, ISSN 0065-9266, 2014, vol. 232, no. 1089, str. 1-74. [COBISS.SI-ID 16947545]

Peter Šemrl:

ŠEMRL, Peter. Invertibility preservers on central simple algebras. *Journal of algebra*, ISSN 0021-8693, 2014, vol. 408, str. 42-60. [COBISS.SI-ID 16962649]

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