

UČNI NAČRT PREDMETA / COURSE SYLLABUS						
<b>Predmet:</b>		Rieszovi prostori v matematični ekonomiji				
<b>Course title:</b>		Riesz spaces in mathematical economics				
<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	
Magistrski študijski program Matematika		ni smeri		1 ali 2	prvi ali drugi	
Master's study programme Mathematics		none		1 or 2	first or second	
<b>Vrsta predmeta / Course type</b>				izbirni		
<b>Univerzitetna koda predmeta / University course code:</b>				M2529		
<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	15	30			105	6
<b>Nosilec predmeta / Lecturer:</b>		prof. Boris Lavrič, prof. Roman Drnovšek				
<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>		
<b>Vsebina:</b>				<b>Content (Syllabus outline):</b>		
Arrow-Debreujev model za izmenjalne ekonomije s končno mnogo dobrinami in porabniki.				The Arrow-Debreu model for exchange economies with a finite number of commodities and consumers. Kakutani fixed-point theorem. A Walras equilibrium in a neoclassical exchange		

<p>Kakutanijev izrek o negibni točki.</p> <p>Walrasovo ravnovesje v neoklasični izmenjalni ekonomiji.</p> <p>Izreka o blagostanju.</p> <p>Rieszovi prostori. Linearni funkcionali in linearni operatorji.</p> <p>Rieszovi prostori dobrin in cen.</p> <p>Model izmenjalne ekonomije z neskočnorazsežnim prostorom dobrin in števno mnogo porabniki.</p>	<p>economy.Welfare theorems.</p> <p>Riesz spaces. Linear functionals and linear operators.Riesz spaces of commodities and prices.Model for exchange economy with infinitesimal space of commodities and countably many consumers.</p>
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### Temeljni literatura in viri / Readings:

C. D. Aliprantis, D. J. Brown, O. Burkinshaw: Existence and optimality of competitive equilibria, Springer-Verlag, Berlin, 1990.

C. D. Aliprantis: Problems in equilibrium theory, Springer-Verlag, Berlin, 1996.

C. D. Aliprantis, O. Burkinshaw: Locally solid Riesz spaces with applications to economics, Mathematical Surveys and Monographs 105, American Mathematical Society, Providence, RI, 2003.

### Cilji in kompetence:

Študent spozna uporabo teorije Rieszovih prostorov v matematični ekonomiji. Pri tem se seznanjajo z nekaterimi modeli za izmenjalne ekonomije.

### Objectives and competences:

Students learn about the application of the theory of Riesz spaces in mathematical economics. They get acquainted with some models of exchange economies.

### Predvideni študijski rezultati:

Znanje in razumevanje:  
Poznavanje in razumevanje osnovnih pojmov teorije Rieszovih prostorov. Sposobnost njene uporabe v matematični ekonomiji.

Uporaba:

Uporaba teorije Rieszovih prostorov na modelih za izmenjalne ekonomije.

### Intended learning outcomes:

Knowledge and understanding:  
Knowledge and understanding of the basic concepts of the theory Riesz spaces. The ability of its use in mathematical economics.

Application:

Using the theory of Riesz spaces on models of

<p>Refleksija:</p> <p>Razumevanje teorije na podlagi primerov in uporabe.</p> <p>Prenosljive spretnosti – niso vezane le na en predmet:</p> <p>Identifikacija in reševanje problemov.</p> <p>Formulacija nematematičnih problemov v matematičnem jeziku.</p> <p>Spretnost uporabe domače in tuje literature.</p>	<p>exchange economies.</p> <p>Reflection:</p> <p>Understanding of the theory and the ability to apply it to concrete examples.</p> <p>Transferable skills:</p> <p>Identifying and solving problems. Formulation of nonmathematical problems in mathematical language. Ability to use domestic and foreign literature.</p>
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**Metode poučevanja in učenja:**

predavanja, vaje, domače naloge, konzultacije, seminarske naloge

**Learning and teaching methods:**

Lectures, exercises, homeworks, consultations, seminars

Delež (v %) /

**Načini ocenjevanja:**

Weight (in %)

**Assessment:**

<p>domače naloge</p> <p>izpit</p> <p>Ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)</p>	<p>20%</p> <p>80%</p>	<p>homeworks</p> <p>exam</p> <p>Grading: 1-5 (fail), 6-10 (pass) (according to the Statute of UL)</p>
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**Reference nosilca / Lecturer's references:**

Roman Drnovšek:

- DRNOVŠEK, Roman. Triangularizing semigroups of positive operators on an atomic normed Riesz space. Proceedings of the Edinburgh Mathematical Society, ISSN 0013-0915, 2000, let. 43, št. 1, str. 43-55 [COBISS.SI-ID 9480281]
- DRNOVŠEK, Roman. On positive unipotent operators on Banach lattices. Proceedings of the American Mathematical Society, ISSN 0002-9939, 2007, vol. 135, no. 12, str. 3833-3836

[COBISS.SI-ID 14382937]

– DRNOVŠEK, Roman. An infinite-dimensional generalization of Zenger's lemma. *Journal of mathematical analysis and applications*, ISSN 0022-247X. [Print ed.], 2012, vol. 388, iss. 2, str. 1233-1238 [COBISS.SI-ID 16214617]

Boris Lavrič:

– LAVRIČ, Boris. Monotonicity properties of certain classes of norms. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 1997, let. 259, str. 237-250 [COBISS.SI-ID 7388761]

– LAVRIČ, Boris. The isometries and the G-invariance of certain seminorms. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2003, vol. 374, str. 31-40 [COBISS.SI-ID 12751193]

– LAVRIČ, Boris. The isometries of certain maximum norms. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2005, vol. 405, str. 249-263 [COBISS.SI-ID 13679961]