

UČNI NAČRT PREDMETA / COURSE SYLLABUS							
Predmet:		Rieszovi prostori v matematični ekonomiji					
Course title:		Riesz spaces in mathematical economics					
Študijski program in stopnja Study programme and level		Študijska smer Study field		Letnik Academic year		Semester 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	
Vrsta predmeta / Course type				izbirni			
Univerzitetna koda predmeta / University course code:				M2529			
Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS	
30	15	30			105	6	
Nosilec predmeta / Lecturer:				Marko Kandić, prof. Roman Drnovšek			
Jeziki / Languages:		Predavanja / Lectures: slovenski/Slovene, angleški/English					
		Vaje / Tutorial: slovenski/Slovene, angleški/English					
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:				Prerequisites:			
Vsebina:				Content (Syllabus outline):			

<p>Arrow-Debreujev model za izmenjalne ekonomije s končno mnogo dobrinami in porabniki.</p> <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>The Arrow-Debreu model for exchange economies with a finite number of commodities and consumers. Kakutani fixed-point theorem.</p> <p>A Walras equilibrium in a neoclassical exchange economy. Welfare theorems.</p> <p>Riesz spaces. Linear functionals and linear operators. Riesz spaces of commodities and prices. Model for exchange economy with infinite dimensional 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.

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.

<p>Uporaba:</p> <p>Uporaba teorije Rieszovih prostorov na modelih za izmenjalne ekonomije.</p> <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>Application:</p> <p>Using the theory of Riesz spaces on models of 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

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
domače naloge izpit	20%	homeworks exam
Ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)	80%	Grading: 1-5 (fail), 6-10 (pass) (according to the Statute of UL)

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]

– KANDIĆ, Marko, VAVPETIČ, Aleš. The countable sup property for lattices of continuous functions. Journal of mathematical analysis and applications. [Print ed.]. Sep. 2018, vol. 465, iss. 1, str. 588-603. ISSN 0022-247X. [COBISS.SI-ID 18406489] [COBISS.SI-ID 18406489]

– DRNOVŠEK, Roman, KANDIĆ, Marko. Positive operators as commutators of positive operators. Studia Mathematica. 2019, tom 245, str. 185-200. ISSN 0039-3223. [COBISS.SI-ID 18407769] [COBISS.SI-ID 18407769]

Marko Kandić:

– KANDIĆ, Marko. Sets of matrices with singleton spectra generated by positive matrices, Linear Algebra and its Applications. ISSN 0024-3795. - Vol. 496 (2016), str. 463-474. [COBISS.SI-ID 17602137]

– KANDIĆ, Marko, VAVPETIČ, Aleš. The countable sup property for lattices of continuous functions. Journal of mathematical analysis and applications. [Print ed.]. Sep. 2018, vol. 465, iss. 1, str. 588-603. ISSN 0022-247X. [COBISS.SI-ID 18406489] [COBISS.SI-ID 18406489]

– DRNOVŠEK, Roman, KANDIĆ, Marko. Positive operators as commutators of positive operators. Studia Mathematica. 2019, tom 245, str. 185-200. ISSN 0039-3223. [COBISS.SI-ID 18407769] [COBISS.SI-ID 18407769]