UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2016/17)			
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 Finančna matematika	ni smeri	1 ali 2	prvi ali drugi
Master's study programme Financial Mathematics	none	1 or 2	first or second

Vrsta predmeta / Course type	izbirni / elective
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:	prof. dr. Roman Drnovšek, prof. dr. Boris Lavrič

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:**
Vpis v letnik študija.	Enrolment in the programme.
Vsebina:	**Content (Syllabus outline):**

Arrow-Debreujev model za izmenjalne ekonomije s končno mnogo dobrinami in porabniki. Kakutanijev izrek o negibni točki. Walrasovo ravnovesje v neoklasični izmenjalni ekonomiji. Izreka o blagostanju. Rieszovi prostori. Linearni funkcionali in linearni operatorji. Rieszovi prostori dobrin in cen. Model izmenjalne ekonomije z neskočnorazsežnim prostorom dobrin in števno mnogo 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 economy.Welfare theorems. Riesz spaces. Linear functionals and linear operators.Riesz spaces of commodities and prices.Model for exchange economy with infinitedimensional space of commodities and countably many consumers.

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:	**Objectives and competences:**
Študent spozna uporabo teorije Rieszovih prostorov v matematični ekonomiji. Pri tem se seznani z nekaterimi modeli za izmenjalne ekonomije.	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:	**Intended learning outcomes:**
Znanje in razumevanje: Poznavanje in razumevanje osnovnih pojmov	Knowledge and understanding: Knowledge and understanding of the basic

teorije Rieszovih prostorov. Sposobnost njene uporabe v matematični ekonomiji. Uporaba: Uporaba teorije Rieszovih prostorov na modelih za izmenjalne ekonomije. Refleksija: Razumevanje teorije na podlagi primerov in uporabe. Prenosljive spretnosti – niso vezane le na en predmet: Identifikacija in reševanje problemov. Formulacija nematematičnih problemov v matematičnem jeziku. Spretnost uporabe domače in tuje literature.	concepts of the theory Riesz spaces. The ability of its use in mathematical economics. Application: Using the theory of Riesz spaces on models of exchange economies. Reflection: Understanding of the theory and the ability to apply it to concrete examples. Transferable skills: Identifying and solving problems.Formulation of nonmathematical problems in mathematical language.Ability to use domestic and foreign literature.

Metode poučevanja in učenja:	**Learning and teaching methods:**
predavanja, vaje, domače naloge, konzultacije, seminarske naloge	Lectures, exercises, homeworks, consultations, seminars

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
domače naloge izpit Ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)	 20% 80%	homeworks exam 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]

Boris Lavrič:

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]

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. 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]