UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Analiza mehkih množic
Course title:	Fuzzy-Set Analysis

Študijski program in stopnja **Study programme and level**	**Študijska smer** **Study field**	**Letnik** **Academic year**	**Semester** **Semester**
Podatkovne znanosti, magistrski študijski program druge stopnje	-	Prvi	Drugi
The second cycle masters study programme Data Sciences	-	First	Second

Vrsta predmeta / Course type	Izbirni / Elective

Univerzitetna koda predmeta / University course code:	2-PZ-MAG-IP-AMM-2020-06-30

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
30	/	30	/	/	90	5

Nosilec predmeta / Lecturer:	Prof. dr. Borut Rončević / Prof. Dr. Borut Rončević

Jeziki / **Languages:**	**Predavanja /** **Lectures:**	Slovenski / Angleški
	Vaje / Tutorial:	Slovenski / Angleški

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Za vključitev v delo mora študent poznati osnove kvalitativne in kvantitativne raziskovalne paradigme in osnovne postopke analize kvalitativnih in kvantitativnih podatkov.	The student must know the basics of qualitative and research paradigm and the basic procedures for analysing qualitative and quantitative data.

Vsebina:

Content (Syllabus outline):

Analiza mehkih množic in korelacijske povezave: - Mehke relacije v raziskavah: osnovni koncepti - Mehke množice in mehke relacije - Vrednotenje mehkih relacij: skladnost in pokritost Umerjanje v primerjavi z meritvijo: - Zakaj umeriti? - Umerjanje mehkih množic Konfiguracije pogojev v primerjavi z neodvisnimi spremenljivkami: - Konfiguracijsko razmišljanje - Konfiguracijska analiza z uporabo analize mehkih množic in tabel resnic Analiza vzročne kompleksnosti v primerjavi z analizo skupnih učinkov: - Omejena raznolikost in hipotetični primeri - Lahki proti težkim hipotetični primeri - Omejitve razmišljanja o skupnih učinkih - Skupni učinki v primerjavi s konfiguracijami Uporaba specifične programske opreme za analizo mehkih množic: - FSQCA - R	Set-theoretic versus correlational connections: - Set relations in research: basic concepts - Fuzzy-sets and fuzzy-set relations - Evaluating set relations: consistency and coverage Calibration vs. Measurement: - Why calibrate? - Calibrating fuzzy sets Configurations of conditions versus independent variables: - Configurational thinking - Configurational analysis using fuzzy sets and truth tables Analysis of causal complexity versus analysis of net effects: - Limited diversity and counterfactual cases - Easy versus difficult counterfactuals - The limitations of net effect thinking - Net effects versus configurations Application of specific software for fuzzy-set analysis: - FSQCA - R

Temeljni literatura in viri / Readings:

RAGIN, Charles (2014): The Comparative Method: Moving beyond Qualitative and Quantitative Strategies. University of California Press.
RIHOUX, Benoît and Charles RAGIN (2008): Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques. Sage.
GOERTZ, Gary and James MAHONEY (2012): A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences. Princeton University Press.
RAGIN, Charles (2000): Fuzzy-set Social Science. Chicago: University of Chicago Press.
RONČEVIĆ, Borut: Prosojnice iz predavanj in vaj pri predmetu Analiza mehkih množic, Moodle, FIŠ.

Cilji in kompetence:	Objectives and competences:
Splošne kompetence:	*General competences:*
- Splošno razumevanje pomena podatkov. - Sposobnost interpretacije rezultatov podatkovne analize. - Uporaba ustreznih metodoloških pristopov za izvajanje, koordiniranje in organiziranje raziskav. - Sposobnost iskanja virov in pridobivanja podatkov za pripravo analize skladno s podanimi zahtevami. - Sposobnost obvladovanja in pretvorbe realnega problema v obliki lažje predstavljivega modela. - Sposobnost analitičnega in algoritmičnega razmišljanja.	- General understanding of the meaning of data. - The ability to interpret the results of data analysis. - Utilization of adequate methodological approaches to conduct, coordination and organisation of research. - The ability to find sources and obtain data to perform the requested analysis. - The ability to manage and transform a real problem into a simplified model. - The ability of analytical and algorithmic thinking.
Predmetno-specifične kompetence:	*Subject-specific competences:*
- Poznavanje osnovnih konceptov analize mehkih množic in mehkih kavzalnih relacij. - Vrednotenje mehkih relacij. - Poznavanje in uporaba mer skladnosti in pokritosti v analizi mehkih množic. - Razumevanje pomena umerjanja v analizi kvantitativnih in kvalitativnih podatkov. - Sposobnost umerjanja mehkih množic v konkretnem empiričnem raziskovanju. - Sposobnost konfiguracijskega razmišljanja pri empiričnem raziskovanju. - Razumevanje vzročne kompleksnosti in razlikovanje od analize skupnih učinkov. - Razumevanje pomena hipotetičnih primerov v empiričnem raziskovanju.	- Knowledge of the basic concepts in fuzzy-set analysis and fuzzy causal relations. - Evaluation of fuzzy-set relations. - Knowledge and application of consistency and coverage in fuzzy-set analysis. - Understanding the importance of calibration in the analysis of quantitative and qualitative data. - The ability to calibrate fuzzy-sets in specific empirical research. - Capacity for configurational thinking in empirical research. - Understanding causal complexity and differentiating it from net effect analysis. - Understanding the importance of counterfactual cases in empirical research. - Ability to use specific software for fuzzy-set analysis.

- Usposobljenost za uporabo specifične programske opreme pri analizi mehkih množic.	

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje: Študent bo: - Seznanjen z namenom predmeta, vsebino in metodami dela ter njegovimi obveznostmi. - Razumel obseg in vsebino področja analize mehkih množic. - Razumel in jasno razlikoval ključne kategorije v okviru analize mehkih množic. - Pridobil vpogled v razlike in možnosti združevanja analize kvalitativnih in kvantitativnih podatkov v mehkih množicah. - Usposobljen za konfiguracijsko razmišljanje pri analizi empiričnih podatkov. - Znal oblikovati bazo podatkov, ki bo vključevala kvalitativne in kvantitativne podatke. - Znal izvesti ustrezne analitske postopke, ki jih ponuja analiza mehkih množic. - Ustrezno interpretiral rezultate analize mehkih množic. - Znal ustrezno uporabljati osnovno programsko opremo za analizo mehkih množic.	Knowledge and understanding: Students will be: - Informed of the purpose of course, content and methods of work and his/her obligations - Understand the scope and content of the field of fuzzy-set analysis - Understand and clearly distinguish the key categories in fuzzy-set analysis - Gain insight into the differences and possibilities of merging qualitative and quantitative data in fuzzy-set analysis. - Understand configurational thinking in the analysis of empirical data. - Be able to create a fuzzy-set database that will include both qualitative and quantitative data. - Will perform appropriate analytical procedures offered by the fuzzy-set analysis. - Properly interpret the results of fuzzy-set analysis. - Be able to authoritatively use basic software for the analysis of soft sets.

Metode poučevanja in učenja:

Learning and teaching methods:

- Predavanja z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov); - Vaje na seminarski način (refleksija prebranih besedil in lastnih izkušenj, timsko delo, metode kritičnega mišljenja, diskusija, sporočanje povratne informacije, socialne igre);	- Lectures with active participations by the students (explanation, discussion, questions, cases, problems solving); - Seminars (reflections of the read texts and own experience, team work, methods of critical thinking, discussions, reporting feedback information, social games); - Seminars based on experience based learning, participation in problem learning

- Vaje, ki temeljijo na izkušenjskem, sodelovalnem in problemskem učenju (samostojno učenje, diskusija, razlaga, opazovanje, timsko delo, študija primera, metode kritičnega branja in pisanja, evalvacija, samoocenjevanje); - Individualne in/ali skupinske konzultacije (diskusija, dodatna razlaga, obravnava specifičnih vprašanj); - Možnost oblikovanje portfolija in samostojen študij (motiviranje, usmerjanje, samoopazovanje, samouravnavanje, refleksija).	(independent study, discussion, explanation, observation, team work, case study, methods of critical reading and writing, evaluation, self-evaluation); - Individual and/or groups consultations (discussion, additional explanation, dealing with specific issues); - A possibility of portfolio formation and independent study (motivating, guiding, self-observing, self-tuning, reflection).

Delež (v %) /

Načini ocenjevanja: Weight (in %) **Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt): Raziskovalna seminarska naloga z uporabo primarne ali sekundarne analize mehkih množic.	100 %	Type (examination, oral, coursework, project): Research essay using a primary or secondary analysis of soft sets.

Reference nosilca / Lecturer's references:

- MODIC, Dolores, RONČEVIĆ, Borut. Social topography for sustainable innovation policy : putting institutions, social networks and cognitive frames in their place. Comparative sociology, ISSN 1569-1322, 2018, vol. 17, iss. 1, str. 100-127.
- RONČEVIĆ, Borut, MODIC, Dolores. Regional systems of innovations as social fields. Sociologija i prostor: časopis za istraživanje prostornog i sociokulturnog razvoja, ISSN 1846-5226, 2011, vol. 49, no. 191, str. 313-333.
- RONČEVIĆ, Borut, MAKAROVIČ, Matej, TOMŠIČ, Matevž, CEPOI, Victor. Methodological solutions for comparative research on transformations. V: VIHALEMM, Peeter (ur.), MASSO, Anu (ur.), OPERMANN, Signe (ur.). The Routledge International Handbook of European Social Transformations, (Routledge international handbooks). Abingdon; New York: Routledge. 2018
RONČEVIĆ, Borut, MODIC, Dolores. Social fields of technological innovations. V: GENOV, Nikolai (ur.). Global trends and regional development, (Routledge studies in development and society, 28). New York: Routledge. cop. 2012, str. [226]-247.
- ADAM, Frane, MAKAROVIČ, Matej, RONČEVIĆ, Borut, TOMŠIČ, Matevž. The challenges of sustained development : the role of socio-cultural factors in East-Central Europe. New York; Budapest: Central European University Press, cop. 2005.