

UČNI NAČRT PREDMETA / COURSE SYLLABUS						
Predmet:	Izbrana poglavja iz verjetnosti in statistike					
Course title:	Topics in probability and statistics					
Študijski program in stopnja Study programme and level	Študijska smer Study field		Letnik Academic year		Semester Semester	
3MaFi	Matematika		1 ali 2		prvi ali drugi	
3MaFi	Mathematics		1 or 2		first or second	
Vrsta predmeta / Course type			izbirni			
Univerzitetna koda predmeta / University course code:			M3118			
Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30					150	6
Nosilec predmeta / Lecturer:			prof. Janez Bernik, prof. Mihael Perman			
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>Izbrane bodo nekatere standardne teme iz podiplomske verjetnosti in statistike. Možna poglavja so:</p> <ul style="list-style-type: none"> - Konvergenca slučajnih spremenljivk. - Pogojna pričakovana vrednost in pogojne porazdelitve. - Martingali - Brownovo gibanje - Ocenjevanje parametrov, optimalnost. - Priezkušanje domnev, optimalnost. - Asimptotske lastnosti cenilk in testov. <p>Izbira je odvisna od interesov in raziskovalne usmeritve študentov.</p>	<p>The content consists of a selection of standard topics in advanced probability and statistics. Possible topics are:</p> <ul style="list-style-type: none"> - Convergence of random variables. - Conditional expectation and conditional distributions. - Martingales. - Brownian motion. - Parameter estimation, optimality. - Hypothesis testing, optimality. - Asymptotic theory <p>The choice depends on students' research interests.</p>
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Temeljni literatura in viri / Readings:

<p>R. Durrett, Probability: Theory and Examples, Second Edition, Duxbury Press, 1996. S. R. S. Varadhan, Probability Theory, American Math. Soc., 2001.</p> <p>S. M. Ross, Stochastic Processes, Wiley, 1996</p> <p>J. Bertoin, Lévy Processes, Cambridge University Press, 1996.</p> <p>M. J. Schervish, Theory of Statistics, Springer, 1995.</p> <p>J. Shao, Mathematical Statistics, 3rd edition, Springer, 2007.</p>
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Cilji in kompetence:

<p>Namen predmeta je seznaniti študente z nekaterimi pomembnimi temami verjetnosti in statistike.</p>

Objectives and competences:

<p>The main goal of the course is to provide students with some important topics in probability and statistics.</p>

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje predstavljenih konceptov.
Sposobnost uporabe pridobljenega znanja in spretnosti.

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Sposobnost uporabe pridobljenega znanja in spretnosti.

Metode poučevanja in učenja:

Predavanja, konzultacije, reševanje problemov

Learning and teaching methods:

Lectures, consultations, problem sessions

Delež (v %) /

Načini ocenjevanja:

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:

Janez Bernik:

- BERNIK, Janez, MASTNAK, Mitja, RADJAVI, Heydar. Realizing irreducible semigroups and real algebras of compact operators. Journal of mathematical analysis and applications, ISSN 0022-247X. [Print ed.], 2008, vol. 348, no. 2, str. 692-707. [COBISS.SI-ID 14899289]
- BERNIK, Janez, MARCOUX, Laurent W., RADJAVI, Heydar. Spectral conditions and band reducibility of operators. Journal of the London Mathematical Society, ISSN 0024-6107, 2012, vol. 86, no. 1, str. 214-234. [COBISS.SI-ID 16357721]
- BERNIK, Janez, MASTNAK, Mitja. Lie algebras acting semitransitively. Linear Algebra and its Applications, ISSN 0024-3795. [Print ed.], 2013, vol. 438, iss. 6, str. 2777-2792. [COBISS.SI-ID 16553561]

Mihael Perman:

- PERMAN, Mihael, WELLNER, Jon A. On the distribution of Brownian areas. Annals of applied probability, ISSN 1050-5164, 1996, let. 6, št. 4, str. 1091-1111 [COBISS.SI-ID 7101017]
- PERMAN, Mihael. An excursion approach to Ray-Knight theorems for perturbed Brownian

motion. Stochastic Processes and their Applications, ISSN 0304-4149. [Print ed.], 1996, let. 63, str. 67-74 [COBISS.SI-ID 7621465]

– PERMAN, Mihael, WELLNER, Jon A. An excursion approach to maxima of the Brownian bridge. Stochastic Processes and their Applications, ISSN 0304-4149. [Print ed.], 2014, vol. 124, iss. 9, str. 3106-3120 [COBISS.SI-ID 17154393]