

UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2017/18)						
Predmet:		Statistika 1				
Course title:		Statistics 1				
Študijski program in stopnja Study programme and level		Študijska smer Study field		Letnik Academic year	Semester Semester	
Univerzitetni študijski program Finančna matematika		ni smeri		3	drugi	
First cycle academic study programme Financial Mathematics		none		3	second	
Vrsta predmeta / Course type				obvezni / compulsory		
Univerzitetna koda predmeta / University course code:				M0363		
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. Mihael Perman, prof. dr. Jaka Smrekar				
Jeziki / Languages:		Predavanja / Lectures:		slovenski / Slovene		
		Vaje / Tutorial:		slovenski / Slovene		
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:				Prerequisites:		
Vpis v letnik študija. Opravljeni predmeti Analiza 2, Verjetnost in statistika in Verjetnost 1.				Enrolment in the programme. Completed courses Analysis 2, Probability and statistics and Probability 1.		
Vsebina:				Content (Syllabus outline):		

<p>Pregled statističnih modelov, linearna regresija, analiza variance, logistična regresija, multivariatne metode, časovne vrste, neparametrične metode, posplošeni linearni modeli.</p> <p>Zadostnost, definicija, Rao-Blackwellov faktorizacijski izrek, enakomerno najboljše cenilke, Neyman-Pearsonov izrek, enakomerno najmočnejši testi.</p> <p>Neparametrične metode.</p> <p>Večrazsežna normalna porazdelitev, definicija, lastnosti, pogojne porazdelitve, kvadratne forme.</p> <p>Regresija, ocenjevanje linearnih funkcionalov, splošni izrek Gauss-Markova, posplošitve.</p>	<p>Survey of statistical models, linear regression, analysis of variance, logistic regression, multivariate methods, time series, nonparametric methods, generalized linear models.</p> <p>Sufficiency, definition, Rao-Blackwell factorization theorem, uniformly best estimators, Neyman-Pearson theorem, uniformly most powerful tests.</p> <p>Nonparametric methods.</p> <p>Multivariate normal distribution, definition, properties, conditional distributions, quadratic forms.</p> <p>Regression, estimation of linear functionals, general Gauss-Markov theorem, generalizations.</p>
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Temeljni literatura in viri / Readings:

J. Rice, Mathematical Statistics & Data Analysis, Third Edition, Duxbury, 2007.

G. G. Roussas, A Course in Mathematical Statistics, 2nd edition, Academic Press, 1997.

Cilji in kompetence:

Analiza in interpretacija podatkov je bistven del zadolžitev finančnih matematikov. Tečaj je namenjen predstavitvi bolj naprednih statističnih konceptov in modelov, ki največkrat nastopijo v statistični praksi.

Objectives and competences:

Analysing and interpreting data is an essential part of the work of a financial mathematician. The course presents more advanced statistical concepts and statistical models most commonly used in statistical practice.

Predvideni študijski rezultati:

Intended learning outcomes:

Poznavanje statističnega razmišljanja statističnih konceptov v obsegu, ki zadošča za samostojen študij in samostojno uporabo statistike.

Introduction of statistical concepts sufficient for independent study and the ability to present and analyze data with more advanced statistical models.

Metode poučevanja in učenja:

Predavanja, vaje, seminarska naloga.

Learning and teaching methods:

Lectures, problem sessions, seminar assignment.

Načini ocenjevanja:

Delež (v %) /
Weight (in %)

Assessment:

2 kolokvija ali pisni izpit, ustni izpit.

2 midterms or written exam, oral exam.

Seminarska naloga.

Seminar assignment.

Ocene: 1-5 (negativno), 6-10 (pozitivno)
(po Statutu UL)

75 %
25%

Grading: 1-5 (fail), 6-10 (pass) (according to the Statute of UL)

Reference nosilca / Lecturer's references:

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. 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, 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]

SMREKAR, Jaka. Turning a self-map into a self-fibration. Topology and its Applications, ISSN 0166-8641. [Print ed.], 2014, vol. 167, str. 76-79. [COBISS.SI-ID 16943705]

SMREKAR, Jaka. Homotopy type of space of maps into a $K(G,n)$. Homology, homotopy, and

applications, ISSN 1532-0073, 2013, vol. 15, no. 1, str. 137-149. [COBISS.SI-ID 16643929]

SMREKAR, Jaka. Homotopy type of mapping spaces and existence of geometric exponents. Forum mathematicum, ISSN 0933-7741, 2010, vol. 22, no. 3, str. 433-456. [COBISS.SI-ID 15638105]