2019/2020

Univerza v Mariboru
Medicinska fakulteta

UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION	
Predmet:	Biostatistika pri raziskovalnem delu
Subject Title:	Biostatistics in medical research

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Splošna medicina General medicine - EMŠP		6	11

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Rač. vaje Com work	Klin. vaje Clin work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
18		27			45	3

Nosilec predmeta / Lecturer: Red. prof. dr. Pavel Skok

Jeziki /	**Predavanja / Lecture:**	Slovenski/Slovene
Languages:	**Vaje / Tutorial:**	

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

Prerequisits:

Vsebina:

Pomen računalniške tehnologije in statističnih orodij pri znanstveno raziskovalnem delu. Izbor in opredelitev problema v biomedicini, oblikovanje delovne in ničelne domneve (hipoteze) in nivojev tveganja za njeno zavrnitev, sistematično iskanje literature in virov ter njeno kritično proučevanje.

Osnovni pojmi statistike: populacija, vzorec, statistični znak. Osnove verjetnostnega računa: poskus, dogodek, verjetnost, neodvisnost. Naključne spremenljivke: diskretne, zvezne, pomembni tipi porazdelitev. Opisna statistika. Ocenjevanje parametrov. Preizkušanje statističnih domnev: osnovni parametrični in neparametrični preizkusi značilnosti. Linearna regresija, neodvisnost in koreliranost. Posebne metode v medicinski statistiki.

Content (Syllabus outline):

Importance of the computing technology and statistical hardware in scientific research. Selection and definition of problem in biomedicine, formulation of work and null hypothesis and risk levels for its rejection, systematic searching for literature and other sources and critical approach.

Elementary statistic concepts: population, sample, significance. Basics of calculation of probability, experiment, event, probability, independence.

Random variables: discrete, continuous, important types of distributions. Descriptive statistic. Assessments of parametric. Testing statistical hypothesis: elementary parametric and nonparametric significance testing. Linear regression. Independence and correlation. Specific methods in medical statistics

Temeljni literatura in viri / Textbooks:

1. Norman K. Denzin (Ed.), Yvonna S. Lincoln (Ed.) Handbook of Qualitative Research, 2nd ed. Sage publications, London 2000.
2. Altman DC. Practical statistics for medical research. Chapman&Hall. London 1996.
3. Matthews DE, Farewell VT. Using and understanding statistics. Karger, Basel, 1996.
4. Adamič Š. Temelji biostatistike, Medicinska fakulteta Ljubljana, 1995.

Cilji:

Objectives:

študentom dati osnovno znanje o nalogah in metodah statistike v biomedicini, seznanitev z uporabo računalniške programske opreme za statistiko in kritičnim vrednotenjem izsledkov. Uporaba najpomembnejših knjižničnih in podatkovnih zbirk za primerjavo izsledkov. Objava rezultatov v obliki primarnega dokumenta/ raziskovalnega poročila/ predavanja.	Acquiring basic knowledge about role and methods of statistics in biomedicine, introduction to usage of statistics software and critical assessment of results. Application of the most important library and data bases for comparison of findings. Announcement of the results in the form of primary document/research report/lecture

Predviedeni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje: razumevanje osnovnih metod biostatistike, uporaba statističnih testov pri testiranju domnev, tolmačenje rezultatov statističnih analiz, sposobnost kritične analize znanstveno raziskovalnih prispevkov. Prenesljive/ključne spretnosti in drugi atributi: uporaba statistične analize pri raziskovalnem delu, računalnika in ustreznih programskih orodij, zavedanje možnih napak pri analizah, sklepanju in prikazovanju rezultatov.	Knowledge and Understanding: Understanding of biostatistics basic methods, testing statistical hypothesis, interpretation of the results of statistical analyses, critical analyse of scientific contributions. Transferable/Key Skills and other attributes: Use of statistical analyse in research, use of computer and software tools, awareness of possible false outcomes, conclusion and presentation of results.

Metode poučevanja in učenja:

Learning and teaching methods:

predavanja, uporaba računalniške programske opreme za statistiko	Lectures, Usage of statistics software.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Opravljen seminar ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV: / POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA: /	**100 %**	Type (examination, oral, coursework, project): Completed seminar ACADEMIC OBLIGATIONS OF STUDENTS: - REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: -

Reference nosilca / Lecturer's references:

PAVEL SKOK:
POPOVIĆ, Peter, ZORE, Andrej, ŠURLAN POPOVIĆ, Katarina, GARBAJS, Manca, SKOK, Pavel. Hepatic encephalopathy after transjugular intrahepatic portosystemic shunt in patients with recurrent variceal hemorrhage. Gastroenterology Research and Practice, ISSN 1687-630X. [Online ed.], 2013. http://www.hindawi.com/journals/grp/2013/398172/cta/, doi: 10.1155/2013/398172. [COBISS.SI-ID 4614463], [JCR, SNIP, WoS do 13. 5. 2013: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0, Scopus do 15. 1. 2014: št. citatov (TC): 1, čistih citatov (CI): 1, normirano št. čistih citatov (NC): 0]

GORENJAK, Mario, TRAPEČAR, Martin, GRADIŠNIK, Lidija, SKOK, Pavel, CENCIČ, Avrelija. A Novel polymerase chain reaction (PCR) based assay for authentication of cell lines or tissues from human, pig and chicken origin. Journal of bioscience and biotechnology. Print ed., 2012, letn. 1, št. 1, str. 1-7. [COBISS.SI-ID 3338284]

SKOK, Pavel, SINKOVIČ, Andreja. Upper gastrointestinal haemorrhage: predictive factors of in-hospital mortality in patients treated in the medical intensive care unit. Journal of international medical research, ISSN 0300-0605, 2011, vol. 39, no. 3, str. 1016-1027. http://www.jimronline.net/content/full/2011/103/1668.pdf. [COBISS.SI-ID 3995967], [JCR, SNIP, WoS do 5. 11. 2013: št. citatov (TC): 1, čistih citatov (CI): 1, normirano št. čistih citatov (NC): 0, Scopus do 25. 9. 2013: št. citatov (TC): 1, čistih citatov (CI): 1, normirano št. čistih citatov (NC): 0]

POPOVIĆ, Peter, ŠTABUC, Borut, SKOK, Pavel, ŠURLAN, Miloš. Transjugular intrahepatic portosystemic shunt versus endoscopic sclerotherapy in the elective treatment of recurrent variceal bleeding. Journal of international medical research, ISSN 0300-0605, 2010, vol. 38, no. 3, str. 1121-1133.

http://www.jimronline.net/content/full/2010/97/1431.pdf. [COBISS.SI-ID 3696447], [JCR, SNIP, WoS do 3. 9. 2013: št. citatov (TC): 1, čistih citatov (CI): 1, normirano št. čistih citatov (NC): 0, Scopus do 27. 8. 2013: št. citatov (TC): 2, čistih citatov (CI): 2, normirano št. čistih citatov (NC): 1]

GORENJAK, Mario, SKOK, Pavel, CENCIČ, Avrelija. Novel promising functional cell models to study molecular events in metabolic syndrome. Nutritional therapy & metabolism, ISSN 1828-6232, 2012, letn. 30, št. 1, str. 34-41. [COBISS.SI-ID 3318572], [SNIP, Scopus do 31. 10. 2012: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0]

GORAZD LEŠNJAK

KUZMA, Bojan, LEŠNJAK, Gorazd, LI, Chi-Kwong, PETEK, Tatjana, RODMAN, Leiba. Norm preservers of Jordan products. The electronic journal of linear algebra, ISSN 1081-3810, 2011, vol. 22, str. 959-978. http://www.math.technion.ac.il/iic/ela/ela-articles/articles/vol22_pp959-978.pdf. [COBISS.SI-ID 16068441], [JCR, SNIP, WoS do 5. 4. 2012: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0, Scopus do 6. 12. 2011: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0]

KUZMA, Bojan, LEŠNJAK, Gorazd, LI, Chi-Kwong, PETEK, Tatjana, RODMAN, Leiba. Conditions for linear dependence of two operators. V: BALL, Joseph A. (ur.), et al. Topics in operator theory. Vol. 1, Operators, matrices and analytic functions : proceedings of the XIXth International Workshop on Operator Theory and its Applications, College of William and Mary, 2008 : a tribute to Israel Gohberg on the occasion of his 80th bithday, (Operator theory, ISSN 0255-0156, 202). Basel: Birkhäuser, cop. 2010, str. 411-434. [COBISS.SI-ID 15598169]

LEŠNJAK, Gorazd. Ergun, Ebru(TR-ANK-P): On the eigenvalues of a non-Hermitian Hamiltonian. (English summary). - Dynamical systems and methods, 245-254, Springer, New York, 2012. MathSciNet, ISSN 2167-5163, 2012, mR2885147. http://www.ams.org/mathscinet/pdf/2885147.pdf. [COBISS.SI-ID 16503897]

LEŠNJAK, Gorazd. De Seguins Pazzis, Clément: The linear preservers of non-singularity in a large space of matrices. (English summary). - Linear Algebra Appl. 436 (2012), no. 9, 3507-3530. MathSciNet, ISSN 2167-5163, 2012, mR2900733. http://www.ams.org/mathscinet/pdf/2900733.pdf. [COBISS.SI-ID 16504153]

LEŠNJAK, Gorazd. Legiša, Peter(SV-LJUB): Adjacency preserving mappings on real symmetric matrices. (English summary). - Math. Commun. 16 (2011), no. 2, 419-432. MathSciNet, ISSN 2167-5163, 2012, mR2900765. http://www.ams.org/mathscinet/pdf/2900765.pdf. [COBISS.SI-ID 16503641]