Faculty of Medicine / MEDICINE / BIOSTATISTICS

Course:	BIOSTATISTICS			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
7927	Mandatory	1	10	2+2+0
Programs	MEDICINE			
Prerequisites	No			
Aims	Getting basic and advanced statistical techniques necessary for organizing and conducting medical surveys. Using appropriate statistical techniques in the phase of data editing and processing. Getting some IBM SPSS commands.			
Learning outcomes				
Lecturer / Teaching assistant	Božidar V. Popović, PhD			
Methodology	Lectures and exercises. Individual and group work with raw statistical data.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	The importance of statistics in biomedical surveys. Retrospective and prospective studies.			
I week exercises	The importance of statistics in biomedical surveys. Retrospective and prospective studies.			
II week lectures	The basic statistics (mean value, variance, confidence intervals)			
II week exercises	The basic statistics (mean value, variance, confidence intervals)			
III week lectures	Median. Percentiles and quartiles. Inter-quartile rank. The distribution function. Normal distribution.			
III week exercises	Median. Percentiles and quartiles. Inter-quartile rank. The distribution function. Normal distribution.			
IV week lectures	Symmetric and asymmetric distributions. The estimation of the mean value in case of symmetric and asymmetric distributions.			
IV week exercises	Symmetric and asymmetric distributions. The estimation of the mean value in case of symmetric and asymmetric distributions.			
V week lectures	The outliers. The treatments of outliers.			
V week exercises	The outliers. The treatments of outliers.			
VI week lectures	Parametric statistics. Statistical hypothesis and test. The first and second kind errors.			
VI week exercises	Parametric statistics. Statistical hypothesis and test. The first and second kind errors.			
VII week lectures	t test. t test for two independent samples. t test for two dependent samples.			
VII week exercises	t test. t test for two independent samples. t test for two dependent samples.			
VIII week lectures	Analysis of variance.			
VIII week exercises	Analysis of variance.			
IX week lectures	Non-parametric statistics. Mann Whitney and Wilcoxon test.			
IX week exercises	Non-parametric statistics. Mann Whitney and Wilcoxon test.			
X week lectures	Kruskal Wallis test.			
X week exercises	Kruskal Wallis test.			
XI week lectures	Using of the parametrical and non-parametrical statistical techniques in dealing with raw statistical data.			
XI week exercises	Using of the parametrical and non-parametrical statistical techniques in dealing with raw statistical data.			
XII week lectures	Correlation analysis.			
XII week exercises	Correlation analysis.			
XIII week lectures	Regression analysis.			
XIII week exercises	Regression analysis.			
XIV week lectures	The survival function. Kaplan Meier estimation of the survival function.			

XIV week exercises	The survival function. Kaplan Meier estimation of the survival function.
XV week lectures	Contingency tables. The coefficient of contingency and Cramer φ. Risk analysis.
XV week exercises	Building of the statistical data base, data processing by means of appropriate statistical techniques.
Student workload	In semester Lectures and final exam: (13 h and 20 min) x 16 = 213 h and 20 min. Neophodne pripreme prije početka semestra (administracija, upis, ovjera) 2 x (13 sati i 20 min) = 26 h and 40 min. Total ballast for subject 10 x 30 = 300 h Additional work for repeated exam preparation, including exam preparation is 60 h Ballast structure: 213 h and 20 min (Lectures) + 26 h and 40 min (Preparation) + 60 h (Additional work)

Per week	Per semester
10 credits x 40/30=13 hours and 20 minutes 2 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises **9 hour(s) i 20 minuts** of independent work, including consultations	Classes and final exam: **13 hour(s) i 20 minuts x 16 =213 hour(s) i 20 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **13 hour(s) i 20 minuts x 2 =26 hour(s) i 40 minuts** Total workload for the subject: **10 x 30=300 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **60 hour(s) i 0 minuts** Workload structure: **213 hour(s) i 20 minuts (cources), 26 hour(s) i 40 minuts (preparation), 60 hour(s) i 0 minuts (additional work)**

Student obligations	
Consultations	
Literature	1. B. Rosner (2010), Fundamentals in Biostatistics,Cengage Learning 2. A. Field (2013), Discovering Statistics using IBM SPSS Statistics, SAGE Publications
Examination methods	Two tests of ten points (20 points in total) Term paper 25 points. Regular lectures presence up to 5 points. Final exam 50 points. Prelazna ocjena se dobija ako se kumulativano sakupi min 50 poena.
Special remarks	
Comment	In phase of lecturs and exercises all statistical techniques are being ilustrated using IBM SPSS Statistics.

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points