

Faculty of Science and Mathematics / BIOLOGY / BIOSTATISTICS

Course:	BIOSTATISTICS			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
12194	Mandatory	3	2	2+0+0
Programs	BIOLOGY			
Prerequisites	Mathematics			
Aims	The course aims to train students to apply basic statistical tools in biology.			
Learning outcomes	Understanding and applying statistical tools used in biology.			
Lecturer / Teaching assistant	Darko Mitrovic			
Methodology	Lectures. Learning and independent homework. Consultations.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Concept and definition of statistics. Basic statistical terms.			
I week exercises	Concept and definition of statistics. Basic statistical terms.			
II week lectures	Numerical and attributive characteristics – arithmetic mean, mode and median. Implementation on the computer.			
II week exercises	Numerical and attributive characteristics – arithmetic mean, mode and median. Implementation on the computer.			
III week lectures	Variance and standard deviation. Grouping of data. Implementation on the computer.			
III week exercises	Variance and standard deviation. Grouping of data. Implementation on the computer.			
IV week lectures	Data presentation. Tabulation. Graphic display. Homework.			
IV week exercises	Data presentation. Tabulation. Graphic display. Homework.			
V week lectures	Percentiles. Suspicious data. Skewness and Kurtosis.			
V week exercises	Percentiles. Suspicious data. Skewness and Kurtosis.			
VI week lectures	I colloquium			
VI week exercises	Check I group of tasks for homework			
VII week lectures	Hypothesis testing. Basic principles. Gaussian distribution.			
VII week exercises	Hypothesis testing. Basic principles. Gaussian distribution.			
VIII week lectures	t-test. Equality of means of two populations			
VIII week exercises	t-test. Equality of means of two populations			
IX week lectures	F-test for equality of variances and application to t-test.			
IX week exercises	F-test for equality of variances and application to t-test.			
X week lectures	Pearsons χ^2 -test.			
X week exercises	Pearsons χ^2 -test.			
XI week lectures	Homogeneity test.			
XI week exercises	Homogeneity test.			
XII week lectures	ANOVA			
XII week exercises	ANOVA			
XIII week lectures	Linear regression.			
XIII week exercises	Linear regression.			
XIV week lectures	II colloquium			
XIV week exercises	Checking the II group of tasks for homework			
XV week lectures	Remedial colloquium			

XV week exercises		Remedial colloquium				
Student workload		Weekly: 2 credits x 40/30 = 2 hours and 40 minutes In the semester: 2 x 30 = 60 hours				
Per week		Per semester				
2 credits x 40/30=2 hours and 40 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes 0 excercises 0 hour(s) i 40 minuts of independent work, including consultations		Classes and final exam: 2 hour(s) i 40 minuts x 16 =42 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 2 hour(s) i 40 minuts x 2 =5 hour(s) i 20 minuts Total workload for the subject: 2 x 30=60 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) 12 hour(s) i 0 minuts Workload structure: 42 hour(s) i 40 minuts (cources), 5 hour(s) i 20 minuts (preparation), 12 hour(s) i 0 minuts (additional work)				
Student obligations		Students are required to attend classes, take control tests and do both colloquiums.				
Consultations		Monday, 14:00-16:00				
Literature		Daniel W. Waiane; Biostatistics: A Foundation for Analysis in the Health Sciences; John Wiley and Sons, USA, 2005				
Examination methods		Homework (0-5 points) . Colloquiums: (0-40 points). Final exam (0 - 10 points). Total 100 points				
Special remarks		No				
Comment		No				
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