Field of study Veterinary medicine Name of the training module including Biostatistics and methods of documentation Language of instruction English Type of the training module Mandatory Level of the training module Long-cycle master's degree studies Form of studies Full-time Location in the programme (year) I Location in the programme (semester) II Number of ECTS credits with a division into contact/noncontact 2 (1/1) Name and surname of the person in charge Arkadiusz Miaskowski Quit offering the subject Department of Applied Mathematics and Computer Science Alim of the module Acquainting students with basic concepts of the theory of probability and mathematical statistics; ability to use descriptive statistics for elementary analysis of experimental data; knowledge of and ability to use computer software for statistical data analysis (e.g. Excel, Python programming language). Learning outcomes — the total number of learning outcomes may not exceed classes used should be presented. Kt. Knowledge of basic concepts of the theory of probability and mathematical statistics (probability, random variable, distribution, distribution and estimator types used in mathematical statistics and ability to describe their characteristics. K3. Ability to adapt model examples of statistical inference in given situations. S2. Ability to adapt model examples of statistical inference. S2. Ability to adapt model examples of statistical in	Code of subject	M_WE_SEM2 BIOST ANG
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Contents of the training module – a compact description	Descriptive statistics (construction of stem-and-leaf displays, determining basic characteristics: measures of position, dispersion, asymmetry and concentration) Elements of the theory of probability (probability, random variable, distribution function, density, discrete and continuous probability distributions – examples: binominal distribution, Poisson distribution, normal distribution, Student's t-distribution, Chi-square) Point and interval estimation (construction of confidence intervals for a mean, mean difference, variance, variance ratio) Parametric tests (mean and variance hypothesis testing) Non-parametric tests (testing the characteristics independence and distribution conformity hypotheses)
Recommended and obligatory reading list	 W. McKinney, Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython, (2017), O'Reilly Media; 2nd edition J. Schmuller, Statistical Analysis with Excel (2016), ISBN-13 : 978-1119271154
The intended forms/activities/ teaching methods	Teaching methods: Lecture, computer laboratory, tutorials, consultations.
Methods of verification and	
documentation forms of the achieved	During the computer laboratory students are free to choose calculation spreadsheet or Python programming language in
learning outcomes	order to complete the laboratory tasks. Python programming
	language is preferred to complete the assignments than, for
	example, MS Excel. Student are obliged to solve and analyse
	selected problems during laboratory exercises. The lecture's
	topics are divided into 4 main sections and during the computer
	laboratory the students' knowledge is verified in practice. The
	final grade is calculated as the mean value on the base of 4
	marks in scale from 2.0 to 5.0. Mark 3.0 (dostateczny) is received
	if student has got 61% preparing each assignments.
	The grading scale is in line with the Faculty Book of Education Quality
Balance of ECTS credits	Contact hours
	Lectures – 15h (0,425 ECTS)
	Laboratory classes – 15h (0,425 ECTS)
	Consultations – 5h (0,15 ECTS)
	Non-contact hours
	Studying recommended literature – 15h (0.5 ECTS)
	Preparation for the classes – 15h (0.5 ECTS)
Number of contact hours	Participation in lectures – 15h (0,425 ECTS)
	Participation in lab classes – 15h (0,425 ECTS)
	Participation in Consultations – 5h (0,15 ECTS)
	Participation in Consultations – 5h (0,15 ECIS)

Relationship between subject learning	K1-other++
outcomes and veterinary studies	K2-other++
learning outcomes	K3-other++
	S1- C.U3+, U-other ++
	S2- C.U3+, U-other ++
	S3- C.U3+, U-other ++
	С1- К8+++
	C2- K7+
Impact of selected compounds to final	K1 -3 – 30%
grade	S1-4 – 65%
	C1 – 5%
	If student wants to get better grade the assignments should be
	completed using Python programming language.