Course name:
Biostatistics - Computer analysis of biological experiments

ECTS	3
Course status	facultative
Course final assessment /evaluation of outcomes	*exam*
Prerequisite	*basic use of spreadsheet software*

Main field of study*:*
Agriculture and Horticulture, Biology and Biotechnology (Erasmus+)

Educational profile	General academic
Code of studies and education level	bachelor/engineer (SI) or master of science (SM)
Semester of studies	winter
Language of instruction	English

Course offered by:

Name of faculty offering the course	Faculty of Biotechnology and Horticulture
Name of department offering the course	Department of Plant Biology and Biotechnology
Course coordinator	prof. dr hab. Rafał Barański

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands			
BST_W1	terms used in statistical analysis of data in biological experiments	EPB2_W01	R, P
BST_W2	methods of statistical analysis	EPB2_W06	R, P
SKILLS – student is able to			
BST_U1	perform statistical analysis of data obtained in biological experiments and interpret results	EPB2_U04	R, P
SOCIAL COMPETENCIES – student is ready to:			
BST_K1	critically interpret conclusions based on statistical outcomes	EPB2_K1	R, P

Teaching contents

Lectures	18 hours
Topics	Basic concepts and properties: variables, distribution, general populations and samples Basic descriptive and estimation statistics: point statistics, location measures, estimation of variability and parameters Hypotheses testing Basic experimental systems, single and multifactorial, completely randomized design and with blocks Analysis of variance for various experimental designs and multiple comparisons, interaction

	of factors Correlation and linear regression analysis

Accomplished learning outcomes	*BST_W1, BST_W2*
Means of verification, rules and criteria of assessment	*Test (50%)*

Classes:	15 hours
Topics	Data management using computer software Calculation of descriptive statistics and parameter estimation Testing hypotheses regarding equal means and variances Analysis of variance Analysis of regression and correlation

Accomplished learning outcomes	*BST_U1, BST_K1*
Means of verification, rules and criteria of assessment	*Computing results from data (50%)*

References:

Basic	*Electronic Statistical Textbook, Statsoft: https://docs.tibco.com/data-science/textbook* *GraphPad guides and calculators: https://www.graphpad.com/data-analysis-resource-center/#guides*
Supplementary	

Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences	1.5	ECTS **
Area of academic study: P – biological sciences	1.5	ECTS**

Structure of student activity

Contact hours		36	hrs.	1.4	ECTS**
Including:	lectures	18	hrs.		
	classes and seminars	15	hrs.		
	consultations	2	hrs.		
	participation in research	…	hrs.		
	obligatory traineeships	…	hrs.		
	participation in examination	1	hrs.		
e-learning		…	hrs.	….	ECTS**
student own work		40	hrs.	1.6	ECTS**

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts
** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes