

<b>Subject name</b>	<b>Statistics</b>	
<b>Subject code</b>	<b>E.2.STA.SC.ECTIE.A</b>	
<b>Department</b>	<b>Institute of Agricultural Engineering and Computer Science</b>	
<b>Faculty</b>	<b>Faculty of Production Engineering and Energetic</b>	
<b>Subject supervisor/Lecturer</b>	<b>Agnieszka Peszek, Ph.D.</b>	
<b>General information</b>	<b>Teaching period</b>	<b>1 semester</b>
	<b>ECTS credit</b>	<b>6</b>
	<b>Lectures total</b>	<b>15</b>
	<b>Lab practical</b>	<b>15</b>
<b>Objective and general description</b>	The objective of the course is teaching the main methods of descriptive statistics and inferential statistics, showing application in practice, using Statistics and Excel	
<b>Lectures 15 hours</b>	<p>1. Descriptive Statistics: Introduction to statistics. Brief look at the history of statistics, General field of Statistics, graphs and measures of central tendency. Measures of variability.</p> <p>2. Probability. The definition of probability. The normal curve and z scores, t scores, applications. Probability and percentage areas of the normal curve.</p> <p>3. Statistics and parameters. Generalizing. Main concepts of the inferential statistics. Techniques of sampling. Sampling distributions. Parameter estimates and hypothesis testing.</p> <p>4. Estimating the standard error of the mean. Estimating the mean: Interval estimates.</p> <p>5. Hypothesis testing. The t ratio. The type 1 error. Alpha levels. The hypothesis of difference. Sampling distribution of differences. Estimated standard error of difference.</p> <p>6. Two-sample t test for independent samples. significance. Two-tail t table. Alpha and confidence levels. The minimum difference, outliers. One-tail t test.</p> <p>7. The hypothesis of association: Correlation. Cause and effect. The Pearson r. Correlation matrix. The Spearman r. Significance of correlation coefficient. Regression analysis. Multiple R. Linear regression with more than two variables.</p>	

	8. Analysis of variance. Applications of ANOVA. The factorial ANOVA
<b>Lab practicals</b> <b>5 x 3 hours</b>	1. Using <i>Statistica</i> and Excel to practice
<b>References</b>	Thomas Hill, Pawel Lewicki. <b>STATISTICS Methods and applications.</b> StatSoft Inc. Tulsa, 2006.