Course Unit Descriptor

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| **Study Programme: Agricultural engineering and information systems** | |
| **Course Unit Title: Statistical methods** | |
| **Course Unit Code: 19.PTI038** | |
| **Name of Lecturer(s): Phd Beba Mutavdzic, Mmgt Tihomir Novaković** | |
| **Type and Level of Studies: Undergraduate Academic Studies** | |
| **Course Status (compulsory/elective):  elective** | |
| **Semester (winter/summer): winter** | |
| **Language of instruction: english** | |
| **Mode of course unit delivery (face-to-face/distance learning): face-to-face** | |
| **Number of ECTS Allocated: 6** | |
| **Prerequisites: none** | |

**Course Aims:**

The curriculum of this course is designed to introduce students with the application of modern statistical methods in solving problems in the field of agricultural sciences and agricultural economics. Students need to comprehend the basic methods of descriptive and inferential statistics.

**Learning Outcomes:**

During the course, students need to become capable of choosing and applying an adequate statistical method in collecting, presenting and analysing data in the fields of agriculture and agricultural economics. Students will be able to use the acquired skills in other courses during their studies and in their scientific-research work.

**Syllabus:**

*Theory*

The fundamentals of statistics. The subject matter and units of observation. Basic set and sample. Observation features. Classification and presentation of statistical data. Analysis of numerical series. Numerical descriptive measures. Theoretical distributions. Discrete and continuous theoretical distributions. Sample. Methods of sample selection. Simple random sample. Statistical inference. Distribution of sample parameters. Principles of parameters estimation. Confidence interval. Hypothesis testing. Testing the hypotheses on arithmetic mean and proportion. Testing the hypothesis in the case of two populations. Analysis of variance. Regression and correlation. Choice of regression function. Simple linear regression. Estimation of regression parameters. Linear correlation.

*Practice*

The fundamentals of statistics.  Analysis of numerical series.  Theoretical distributions.  Distribution of sample parameters.  Statistical inference.   Point and interval estimation of arithmetic mean and proportion. Hypothesis testing. Regression and correlation.

**Required Reading: Mann, P.S., Introductory Statistics, Wiley & Sons, 2010.**

| **Weekly Contact Hours: 4** | **Lectures: 2** | **Practical work: 2** |
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**Teaching Methods:**

Lectures and tutorials, introduction to statistical software,  homework, consultations, tests.

**Knowledge Assessment (maximum of 100 points):**

| **Pre-exam obligations** | points | **Final exam** | points |
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| Active class participation | 5 | written exam | 40 |
| Practical work | 5 | oral exam | 50 |
| Preliminary exam(s) | 40 | Lecture and practical work  attendance | 10 |
| Seminar(s) | / | Total | 100 |

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.