

Faculty of Environmental Management and Agriculture

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Course title: STATISTICS AND EXPERIMENTATION

ECTS credit allocation (and other scores): 2.0

Semester: spring

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 30

Course coordinator/ Department and e-mail: prof. dr hab. inż. Janusz Gołaszewski, Department of Plant Breeding and Seed Production, janusz.golaszewski@uwm.edu.pl

Type of classes: classes and lectures

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Substantive content

CLASSES: Probability theory. Statistical analysis of sample data. Binomial and Poisson distribution. Normal distribution. Standardization of variables. Statistical inference. Testing differences between means. One-way analysis of variance (ANOVA). Regression and correlation. Chi-square test.

LECTURES: Probability theory and its application in research. Descriptive statistics in agricultural experimentation. Discrete random variable. Continuous random variable. Normal distribution – standardization. Point and interval estimates. Statistical inference. Statistical hypothesis. Significance test. Modeling agricultural phenomena. Analysis of variance. Randomized experimental design and randomized block design – theory. Two factor experiments – theory. Correlation and linear regression. Multiple regression models. Chi-square test. Nonparametric tests.

Learning purpose: Students acquire knowledge of statistics. They learn to plan research studies in agriculture and to analyze the results with the use of statistical inference methods.

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On completion of the study programme the graduate will gain:

Knowledge: Student has extensive knowledge of mathematical statistics including the application of basic statistical methods in practice, adapted to the specifics of conducting experiments in broadly understood agriculture.

Skills: Student plans, performs, analyzes and evaluates research data in the broader context of agriculture, correctly interprets the results and draws right conclusions.

Social Competencies: Student is able to think and act in an entrepreneurial manner with regard to the planning and implementation of horticultural production results from research.

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Basic literature: Januszewicz E. K., Puzio-Idźkowska M. 2003. Doświadczalnictwo rolnicze. Przewodnik do ćwiczeń. UWM Olsztyn; Łomnicki A. 1999. Wprowadzenie do statystyki dla przyrodników. PWN Warszawa; Szczepański K., Rejman S. 1987. Metodyka badań sadowniczych. PWRiL, Warszawa, 1987

Supplementary literature: –

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The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 1.24 ECTS points

Student's independent work: 0.76 ECTS points