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Course title: MATHEMATICAL STATISTICS

ECTS credit allocation (and other scores): 3,5

Semester: autumn

Level of study: all

Branch of science: Social sciences

Language: English

Number of hours per semester: 45

Course coordinator/ Department and e-mail: Anna Rutkowska-Ziarko, [aniarek@uwm.edu.pl](mailto:aniarek@uwm.edu.pl)

Type of classes: classes and lectures

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#### Substantive content

##### CLASSES:

Types of data: Quantitative data and Qualitative data. Scales of measurement: nominal, ordinal, interval, ratio. Descriptive statistics and mathematical statistics. Discrete random variable, continuous random variable. Probability distribution and cumulative probability distribution. Moments of distributions. Basic parameters of district distribution: mean, median and quartiles, mode, variance, standard deviation, asymmetry, and kurtosis. Binomial distribution, Poisson distribution. Basic continuous distributions and their properties. Uniform distribution. Normal distribution. Point and interval estimates.

##### LECTURES:

Why Statistics is Important to Managers. Types of data: Quantitative data and Qualitative data. Scales of measurement: nominal, ordinal, interval, ratio. Descriptive statistics and mathematical statistics. Discrete random variable, continuous random variable. Probability distribution and cumulative probability distribution. Moments of distributions. Basic parameters of district distribution: mean, median and quartiles, mode, variance, standard deviation, asymmetry, and kurtosis. Binomial distribution, Poisson distribution. Basic continuous distributions and their properties. Point and interval estimates.

Learning purpose: How to use statistics methods to produce useful information to managers?

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On completion of the study programme the graduate will gain:

Knowledge: Basic discrete and continuous distributions and their properties

Skills: Application of statistics methods to produce useful information for decision-making

Social Competencies: Applications of statistics methods in the private life and business activity

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Basic literature: Aczel A., A., *Complete Business Statistics*, every edition

Supplementary literature: Hanke J., E., Reitsch A., G., (1991) *Understanding business statistics*. Printed in United States of America.

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The allocated number of ECTS points consists of: 3,5

1) Contact hours with an academic teacher:45

2) Student's independent work: 30