



Course title: Computer laboratory

ECTS credit allocation (and other scores): 2,5

Semester: spring

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Natural sciences

Language: English/Polish

Number of hours per semester: 30 classes = 30 hours

Course coordinator/ Department and e-mail: Agnieszka Niemczynowicz, niemaga@matman.uwm.edu.pl

Erasmus coordinator Anna Szczepkowska/ WMiI, erasmuswmii.uwm.edu.pl

Type of classes: classes

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Substantive content

CLASSES:

Computer programs in computational techniques used in statistical analysis, free programs in the internet for statistical analysis, example of statistical data analysis in management, economics, biology, ect.

LEARNING PURPOSE

The aims to introduce students to fundamental computational techniques used in statistical analysis. Throughout the course, students will develop both theoretical understanding and practical skills necessary for performing statistical calculations using computer software.

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On completion of the study programme the graduate will gain:

Upon completing the course, graduates will acquire specialized knowledge, technical skills, critical thinking abilities, effective communication skills, ethical values, and adaptability for their chosen field. They will be prepared to tackle complex challenges, collaborate with others, uphold professional standards, and continue learning throughout their careers.

Knowledge:

Students will acquire knowledge about fundamental statistical concepts, including measures of central tendency, dispersion, probability distributions, hypothesis testing, and regression analysis. They will also gain an understanding of how these concepts are applied in real-world scenarios using computer software.

Skills:

Graduates will develop practical skills in conducting statistical computations using computer software packages such as excel, R/Python, or Statistica/SPSS. They will learn how to input data, perform basic calculations, generate descriptive statistics, conduct hypothesis tests, and create graphical representations of data.

Social Competencies:

Students will cultivate social competencies essential for effective collaboration in statistical analysis projects. This includes the ability to work collaboratively in teams, communicate findings effectively to both technical and non-technical audiences, and demonstrate respect for diverse perspectives and methodologies within the field of statistics.

#### **BASIC LITERATURE**

*Basic Statistical Analysis Using the R Statistical Package*, Timothy C. Heeren, Jacqueline N. Milton, Boston University School of Public Health

*Understanding and Applying Basic Statistical Methods Using R*, Rand R. Wilcox, Wiley

#### **SUPPLEMENTARY LITERATURE**

*An Introduction to Data Analysis in R, Hands-on Coding, Data Mining, Visualization and Statistics from Scratch*, Alfonso Zamora Saiz, Carlos Quesada González, Lluís Hurtado Gil, Diego Mondéjar Ruiz, Springer

