

Syllabus of an educational component of a degree programme

Name of unit conducting a component	<i>Doctoral School of Social Sciences</i>
Name of an educational component	Introduction to Statistics and Data Analysis
Language of education	English
Goals of education	<p>The main goal of this course is to learn participants the theoretical concepts of the statistics, to develop statistical skills in doing analysis in their scientific research.</p> <p>Statistical knowledge will be needed at various stage of the research during the PhD education/research. Besides of descriptive statistics, estimation and testing hypothesis as well correlation and linear regression will be presented in different scientific research examples. Additionally, the statistical packages will be introduced to give a possibility to do own analysis. As well the importance will be given for interpretation of the results of the analysis and how the statistical output use in publications.</p>
Learning outcomes of an educational component	<p>The educational component aims to equip students in:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> - To know basic concepts of the statistical analysis - To know how to do data analysis depending on the research problem and data used - To learn statistical methods needed for statistical analysis <p>Skills:</p> <ul style="list-style-type: none"> - To be able to do data analysis - To be able to interpret results of the analysis - To be able to assess the adequacy of using the certain statistical approach/methods in data analysis <p>Competences:</p> <ul style="list-style-type: none"> - To develop ability of organizing and performing the data analysis - To be open for further statistical learning - To be able to collaborate with others in preparing the data analysis - To evaluate if ethical issues are relevant in concrete statistical data analysis

Verification methods and assessment criteria of learning outcomes obtained by students	<ul style="list-style-type: none"> - Joint work during the course - Individual homeworks - Final Data Analysis project
Type of an educational component (obligatory/optional)	Optional
Year of study	1 st 2 nd
Semester	Winter/Summer
Name and surname of the coordinator of a component and/or person/s conducting a component	dr hab. Jolanta Perek-Bialas, prof. UJ
Name and surname of person/s conducting an examination or granting credit in the case when this is another person than conducting a component	dr hab. Jolanta Perek-Bialas, prof. UJ
Manner of completion	Successful pass depends on active participation in the course, individual homeworks, final data analysis project and discussion about it (as oral exam)
Preliminary and additional requirements	None
Type and number of hours of courses requiring direct participation of academic staff and students, if in a given component such courses are included	30 hours (computer lab, with a short lecture component)
Number of ECTS credits assigned to a component	3 ECTS
Balance of ECTS credits	
Applied teaching methods	Short Lecture, Computer Laboratory, Exercises, Case studies, Videos
Form and conditions of passing a component, including conditions of allowing to take an examination, as well as form and conditions of passing each type of courses included in a given component	<p>Active participation in course, including homework (70%)</p> <p>Data Analysis Project (30%)</p> <p>To pass there is a need to achieve at least 60% of the total score.</p>
Content of an educational module (with division into forms of courses completion)	<ol style="list-style-type: none"> 1. Introduction to statistics – aim and plan of analysis 2. Types of various data in statistical context of analysis 3. Examining data: Tables and Figures 4. Measures of central tendency 5. Measures of variability and skewness 6. Distribution: normal and standard normal distribution 7. Probability and introduction to hypothesis testing 8. Chi-square 9. Estimation and errors in hypothesis testing, statistical power

	10. Analysis of variance 11. Correlation: measures 12. Introduction to regression modelling 13. Statistical analysis in practice 14. Statistical analysis in practice
List of basic as well as supplementary literature, knowledge of which is required in order to pass a given component	Books of M. Norusis (last editions) like “ <i>IBM SPSS Statistics 19 Guide to Data Analysis</i> ” Additionally: - Essentials of Social Statistics for a Diverse Society , Third Edition (International Student Edition) Anna Leon-Guerrero , Chava Frankfort-Nachmias , 2018 - Essential Statistics for the Behavioral Sciences Second Edition (International Student Edition), Gregory J. Privitera , 2018 - Statistics and Data Analysis for Social Science , Second Edition, Eric J. Krieg , July 2019 - Fundamental Statistics for the Social and Behavioral Sciences , Second Edition, Howard T. Tokunaga , 2019