**Syllabus of an educational component of a degree programme**

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| Name of unit conducting a component | ***Doctoral School of Social Sciences*** |
| Name of an educational component | **Introduction to Statistics and Data Analysis** |
| Language of education | English |
| Goals of education | 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.  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. |
| Learning outcomes of an educational component | The educational component aims to equip students in:  Knowledge:   * 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   Skills:   * 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   Competences:   * 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 | * Joint work during the course * 5 individual homework * Data Analysis project |
| Type of an educational component (obligatory/optional) | Optional |
| Year of study | 1, 2 |
| Semester | Winter |
| Name and surname of the coordinator of a component and/or person/s conducting a component | **dr hab. Jolanta Perek-Białas, prof. UJ** |
| Name and surname of person/s conducting an examination or granting credit in the case when this sposóis other person than conducting a component | **dr hab. Jolanta Perek-Białas, prof. UJ** |
| Manner of completion | Successful pass depends on active participation in the course, individual homework, written proposal of the research design and its presentation as well as written 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 (mostly in 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 |
| 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 | Written exam (40%)  Active participation in course, including homework (20%)  Data Analysis Project (40%)  To pass there is a need to achieve at least 60% of the total score. |
| Content of an educational module (with division into forms of courses completion) | 1. Introduction to statistics – aim and plan of analysis 2. Types of various data in statistical context of analysis 3. Examing 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 linear regression 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 | 1. [Essentials of Social Statistics for a Diverse Society](https://uk.sagepub.com/en-gb/eur/essentials-of-social-statistics-for-a-diverse-society/book258437), Third Edition (International Student Edition) [Anna Leon-Guerrero](https://uk.sagepub.com/en-gb/eur/author/anna-leon-guerrero), [Chava Frankfort-Nachmias](https://uk.sagepub.com/en-gb/eur/author/chava-frankfort-nachmias), 2018 2. [Essential Statistics for the Behavioral Sciences](https://uk.sagepub.com/en-gb/eur/essential-statistics-for-the-behavioral-sciences/book262110)   Second Edition (International Student Edition), [Gregory J. Privitera](https://uk.sagepub.com/en-gb/eur/author/gregory-j-privitera), 2018   1. [Statistics and Data Analysis for Social Science](https://uk.sagepub.com/en-gb/eur/statistics-and-data-analysis-for-social-science/book265620), Second Edition, [Eric J. Krieg](https://uk.sagepub.com/en-gb/eur/author/eric-j-krieg), July 2019 2. [Fundamental Statistics for the Social and Behavioral Sciences](https://uk.sagepub.com/en-gb/eur/fundamental-statistics-for-the-social-and-behavioral-sciences/book255057), Second Edition, [Howard T. Tokunaga](https://uk.sagepub.com/en-gb/eur/author/howard-t-tokunaga), 2019 |