

### 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	<b>Zaawansowane metody analizy statystycznej</b> <b>Advanced statistical analysis in practice</b>
Language of education	English
Goals of education	Ability to perform advanced methods of statistical analysis (listed below)
Learning outcomes of an educational component	<p>The student knows and understands, and is able to perform following methods of statistical analyses: Correlation, multiple regression; Analysis of variance; Analysis of mediation and moderation; Path analysis; Confirmatory factor analysis; Structural equation modeling; Power analysis; Basic Bayesian analysis</p> <p>The student is able to further learn about the above listed methods of analyses</p> <p>The student is ready and able to learn other methods of advanced statistical analysis</p>
Verification methods and assessment criteria of learning outcomes obtained by students	Practical exam. The student will be given data files and research questions and should be able to perform all necessary analyses. Performing correctly 75% of them is required to pass the exam.
Type of an educational component (obligatory/optional)	Optional
Year of study	1st
Semester	summer
Name and surname of the coordinator of a component and/or person/s conducting a component	Dr hab. Romuald Polczyk, prof. UJ
Name and surname of person/s conducting an examination or granting credit in the case when this is other person than conducting a component	as above
Manner of completion	Workshop; work with computers

Preliminary and additional requirements	Basic orientation in statistical inference
Type and number of hours of courses requiring direct participation of academic staff and students, if in a given component such courses are included	course/workshop – 30 h
Number of ECTS credits assigned to a component	3 ECTS
Balance of ECTS credits	Classes: 30 hours  Student's own work: <ul style="list-style-type: none"> <li>• Doing homeworks: 30 hours</li> <li>• Preparing for classes - 10 hours</li> <li>• Preparing for exam – 20 h</li> </ul>
Applied teaching methods	Workshop; work with computers
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	<ul style="list-style-type: none"> <li>• All homeworks completed</li> </ul>
Content of an educational module (with division into forms of courses completion)	<p>Is able to perform following methods of statistical analysis, using software: PS IMAGO and/or R Environment:</p> <ol style="list-style-type: none"> <li>1. Correlation, multiple regression</li> <li>2. Analysis of variance</li> <li>3. Analysis of mediation and moderation</li> <li>4. Path analysis</li> <li>5. Confirmatory factor analysis</li> <li>6. Structural equation modeling</li> <li>7. Power analysis</li> <li>8. Basic Bayesian analysis</li> </ol>
List of basic as well as supplementary literature, knowledge of which is required in order to pass a given component	<p>Basic literature:</p> <p>Hayes, A. F. (2018). Introduction to mediation, moderation, and conditional process analysis. A regression-based approach. IInd edition. New York: The Guilford Press.</p>

Kline, R. B. (2016). Principles and Practice of Structural Equation Modeling. Fourth Edition. New York: The Guilford Press.

Roseel, Y. Lavaan: latent variable analysis.  
<http://lavaan.ugent.be/tutorial/index.html>