



Subject card

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|---|--|--|-------------------------------------|------------|--|---------|-----|
| Subject name and code | DATA ANALYSIS - A TEAM PROJECT, PG_00060897 | | | | | | |
| Field of study | Economic Analytics | | | | | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | | | 2023/2024 | | |
| Education level | second-cycle studies | Subject group | | | Obligatory subject group in the field of study Subject group related to scientific research in the field of study | | |
| Mode of study | Part-time studies (on-line) | Mode of delivery | | | blended-learning | | |
| Year of study | 1 | Language of instruction | | | Polish | | |
| Semester of study | 1 | ECTS credits | | | 5.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Katedra Statystyki i Ekonometrii -> Faculty of Management and Economics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Karol Flisikowski | | | | | |
| | Teachers | dr inż. Karol Flisikowski | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 8.0 | 0.0 | 24.0 | 0.0 | 0.0 | 32 |
| | E-learning hours included: 24.0 | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | | Self-study | SUM | |
| | Number of study hours | 32 | 5.0 | | 88.0 | 125 | |
| Subject objectives | Uses advanced tools for processing raw economic and social data, which are then used in in-depth statistical analysis, carrying out tasks in the form of a team project | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K7_W03] demonstrates in-depth preparation in the application of analytical methods and techniques for formulating and solving problems | correctly apply modern methods of pre-processing and raw data processing before applying advanced analytical methods, ensuring the reliability of the results | | | [SW1] Assessment of factual knowledge | | |
| | [K7_U05] cooperates with other people in the implementation of teamwork, both as a leader and a team member, effectively achieving the assumed goals | performs analytical work demonstrating the ability to work in a team | | | [SU2] Assessment of ability to analyse information | | |
| | [K7_U01] creates innovative solutions to complex and unstructured problems, taking into account the variability of the environment by synthesising information from many sources | creates innovative solutions to complex problems, taking into account the influence of many factors on the studied phenomenon, synthesizing data from many sources | | | [SU3] Assessment of ability to use knowledge gained from the subject | | |

| Subject contents | <p>Introduction to R, R-studio. Basic operations. Data import from various formats. Measuring scales vs data types in R (vector, dataframe, matrix, list, etc.) Functions, variables, operators, constants. Loops. Conditional expressions and their use in data analysis Basic commands - descriptive statistics Basic commands - mathematical statistics Reporting in R-Markdown Basic data processing (new variables, filters, combining frames: reshape, split, combine) Imputation methods for missing cross-sectional and temporal data Dirty data - missing observations; duplicates; outliers; format errors Data cleaning using Dplyr and TidyR Data cleaning outliers Transformations and discretization of variables Data sources: downloading data from databases (sqlite); web scraping; downloading data to R (Yahoo Finance; Quandl; Google Trends, Eurostat etc.) Dimensional reduction using principal component analysis (PCA). Example applications Graphics in R basic and advanced graphical presentation of data (packages: ggplot2; Lattice; Grid) Publishing reports directly from R introduction to R-Markdown (notebook; presentations R and Powerpoint; HTML slides; PDF beamer etc.) Final project. Presentations</p> | | | | | | | | | | | |
|--|--|---|-------------------------------|--------------------------|-------------------|-------------------------------|------|-------|-------|---------|-------|-------|
| Prerequisites and co-requisites | | | | | | | | | | | | |
| Assessment methods and criteria | <table border="1" data-bbox="451 595 1487 701"> <thead> <tr> <th data-bbox="451 595 794 633">Subject passing criteria</th> <th data-bbox="794 595 1137 633">Passing threshold</th> <th data-bbox="1137 595 1487 633">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 633 794 663">Test</td> <td data-bbox="794 633 1137 663">60.0%</td> <td data-bbox="1137 633 1487 663">40.0%</td> </tr> <tr> <td data-bbox="451 663 794 701">Project</td> <td data-bbox="794 663 1137 701">60.0%</td> <td data-bbox="1137 663 1487 701">60.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | Test | 60.0% | 40.0% | Project | 60.0% | 60.0% |
| | Subject passing criteria | Passing threshold | Percentage of the final grade | | | | | | | | | |
| | Test | 60.0% | 40.0% | | | | | | | | | |
| Project | 60.0% | 60.0% | | | | | | | | | | |
| Test | 60.0% | 40.0% | | | | | | | | | | |
| Project | 60.0% | 60.0% | | | | | | | | | | |
| Recommended reading | Basic literature | Podstawy statystyki z przykładami w R, Tomasz Górecki, Wydawnictwo BTC, 2011 Przewodnik po pakiecie R, Przemysław Biecek, GIS, 2014 | | | | | | | | | | |
| | Supplementary literature | https://cran.r-project.org/web/packages/IPSUR/vignettes/IPSUR.pdf - G. Jay Kerns, Introduction to Probability and Statistics using R, Third Edition, 2018 | | | | | | | | | | |
| | eResources addresses | Adresy na platformie eNauczenie: Analiza danych 2023/24 - Moodle ID: 31454 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=31454 | | | | | | | | | | |
| Example issues/ example questions/ tasks being completed | Final project: preparation of a report and presentation in R-Markdown after data processing and analysis in R | | | | | | | | | | | |
| Work placement | Not applicable | | | | | | | | | | | |