University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Introduction to Data Science, PG_00123424 | | |
| Field of study | Economics | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | 2024/2025 |
| Education level | Master's studies | Subject group | Obligatory subject group in the field of study<br>Specialty subject group |
| Mode of study | full-time studies | Mode of delivery | at the university |
| Year of study | 1 | Language of instruction | Polish |
| Semester of study | 2 | ECTS credits | 2.0 |
| Learning profile | academic | Assessment form | exam |
| Conducting unit | Department of International Economics and Economic Development -> Faculty of Economics -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr Jakub Kwiatkowski | |
| | Teachers | dr Jakub Kwiatkowski | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15 |

E-learning hours included: 0.0

**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 | 15 | 0.0 | 0.0 | 15 |

**Subject objectives**

The subject allows students to learn the basics of data science using the RStudio package. During the semester, the most important packages and tools used by business intelligence analysts are presented. As a result, students will gain practical knowledge combining previously acquired knowledge and analytical skills with actual economic analyzes carried out in business.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [EKONMU2_U08] can independently analyse economic and social phenomena and processes, and can perform a theoretically deepened assessment of such phenomena, using appropriately selected research method | is able to independently analyze economic and social phenomena and processes<br>ability to theoretically in-depth assessment of these phenomena, with appropriate application selected research method and the RStudio package | [SU2] presentation/project/paper/ report |
| [EKONMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance and management sciences | can creatively interpret and explain economic and social phenomena and relationships between these phenomena, using their knowledge in the field of economics, finance and management sciences using the RStudio package | [SU2] presentation/project/paper/ report |
| [EKONMU2_K02] is aware of the level of their knowledge in the area of solving complex problems in economic,; understands the need to extend and update this knowledge throughout his/her life | is aware of the level of his/her knowledge in the area of economics and data science, understands<br>the need to deepen and update this knowledge throughout life | [SK2] presentation/project/paper/ report |
| [EKONMU2_K01] recognises the importance of knowledge in the field of economics in the process of identifying and solving economic problems and of consulting experts when having difficulties in solving them independently | recognizes the importance of economics and data science knowledge in the identification process and<br>solving economic problems and seeking expert opinions in cases difficulties in solving them on your own | [SK2] presentation/project/paper/ report |
| [EKONMU2_W06] knowsin advanced stage statistical and econometric methods and tools for description and macro- and microeconomic modelling of economic structures and public institutions and processes occurring in them | knows statistical and econometric methods and tools for macro description and modeling microeconomic economic structures and public institutions and processes in<br>taking place using the RStudio package | [SW2] presentation/project/paper/ report |
| [EKONMU2_U04] can forecast and model complex economic and social processes using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics) | is able to forecast and model complex economic and social processes<br>using the RStudio package | [SU2] presentation/project/paper/ report |
| [EKONMU2_U03] can analyse causes and course of economic and social processes and phenomena, formulate his/her own opinions on the subject, construct research hypotheses, and select and apply methods of their verification | can analyze the causes and course using the Pandas and NumPy packages<br>economic and social processes and phenomena, formulate their own opinions on this subject, formulate research hypotheses and select and use methods to verify them | [SU2] presentation/project/paper/ report |
| [EKONMU2_U15] can independently expand and improve acquired knowledge and skills in economics; is open to new ideas and techniques; tends to learn using any accessible method and to interact with other participants of the learning process | can independently supplement and improve acquired knowledge in the field of data science economic skills, is open to new ideas and techniques, has a tendency to<br>learning by any method and the tendency to interact with other participants of the learning process | [SU2] presentation/project/paper/ report |

**Subject contents**

1. What is data science? 2. Installing Rstudio 3. Built-in data structures, reading and writing data 4. Basics of libraries in RStudio 5. Basics of modeling in RStudio 6. Cleaning and preparing data 7. Data visualization 8. Testing econometric models in RStudio

**Prerequisites and co-requisites**

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Project | 51.0% | 100.0% |

**Recommended reading**

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|---|---|
| Basic literature | Neusser (2016) Time Series Econometrics. Springer Cham. |
| Supplementary literature | Kwiatkowski (2021) Wpływ luki technologicznej na intensywność wymiany handlowej krajów OECD. Wydawnictwo Uniwersytetu Gdańskiego |
| eResources addresses | |

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|---|---|
| Example issues/ example questions/ tasks being completed | |
| Work placement | Not applicable |

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