

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                          |                                         |                                     |                                                                           |            |     |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|---------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Data analysis and visualisation in business, PG_00171477                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          |                                         |                                     |                                                                           |            |     |
| Field of study                              | Economics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |                                         |                                     |                                                                           |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          | Academic year of realisation of subject |                                     | 2026/2027                                                                 |            |     |
| 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                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                          | Language of instruction                 |                                     | Polish                                                                    |            |     |
| Semester of study                           | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                          | ECTS credits                            |                                     | 4.0                                                                       |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          | Assessment form                         |                                     | credit                                                                    |            |     |
| Conducting unit                             | Division of Electronic Economy -> Department of Maritime Transport and Seaborne Trade -> Faculty of Economics -> Rector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          |                                         |                                     |                                                                           |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                          | dr Dagmara Wach                         |                                     |                                                                           |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          |                                         |                                     |                                                                           |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                                                   | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.0                                                      | 30.0                                    | 0.0                                 | 0.0                                                                       | 0.0        | 30  |
|                                             | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 30                                                       |                                         | 19.0                                |                                                                           | 51.0       | 100 |
| Subject objectives                          | The aim of this course is to provide students with practical skills in business data analytics. During the course, students will gain knowledge about the use of tools such as Google Analytics and Google Tag Manager, which are used to collect and analyze data related to website activity. Additionally, during classes they will learn various data visualization techniques, using specialized software to process information obtained from various sources. While working on their projects or in case of difficulties, students may use consultations with the instructor to deepen their knowledge and receive substantive support. |                                                          |                                         |                                     |                                                                           |            |     |

| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Subject outcome                                                                                                                                                                                                                                              | Method of verification                  |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
|                                 | [EKONMU2_W08] has an in-depth knowledge of processes occurring in enterprises and economic organisations and with related areas, as well as of processes of change in public institutions; knows methods of research on the regularities governing these changes, taking into account the influence of external stakeholders on them                                                                                                                                                                                                                                                                                                                                                                                                                                                | The student has in-depth knowledge of the processes taking place in enterprises, knows methods of examining the regularities governing changes in enterprises, taking into account the influence of economic entities cooperating with them on them.         | [SW2] presentation/project/paper/report |
|                                 | [EKONMU2_W06] knows statistical and econometric methods and tools for description and macro- and microeconomic modelling of economic structures and public institutions and processes occurring in them                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | The student knows methods and tools to measure, analyze and solve issues related to rapidly developing Internet technologies and data analysis tools.                                                                                                        | [SW2] presentation/project/paper/report |
|                                 | [EKONMU2_U02] can use acquired knowledge to describe and analyse the causes and course of economic and social processes and phenomena, and can formulate his/her own opinions and critically select data and analysis methods based on the achievements of economic and social sciences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | The student is able to use theoretical and specialist knowledge in the selection of methods and tools supporting the analysis of business data, including obtaining Internet data and using available measures in data analysis.                             | [SU2] presentation/project/paper/report |
|                                 | [EKONMU2_K02] is aware of the level of his/her knowledge in the field of economics; understands the need to extend and update this knowledge throughout his/her life                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The student is aware of the level of his/her knowledge, is able to independently supplement and improve the acquired knowledge in the field of data analysis, is open to new technologies and is able to share his/her experience and knowledge with others. | [SK2] presentation/project/paper/report |
|                                 | [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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | The student is able to properly analyze business data, interpret and use the information obtained to improve the competitiveness of the company.                                                                                                             | [SU2] 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The student is able to analyze quantitative and qualitative data using advanced statistical methods and tools.                                                                                                                                               | [SU2] presentation/project/paper/report |
|                                 | [EKONMU2_K05] correctly identifies, diagnoses and solves dilemmas and alternative solutions related to the profession                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The student correctly identifies, diagnoses and resolves dilemmas and various variants of solutions related to work in the field of data analysis.                                                                                                           | [SK2] presentation/project/paper/report |
| Subject contents                | <p>1. Introduction to data analysis:- review of analytical tools - principles of data collection and interpretation.2. Google Analytics and Google Tag Manager:- advanced tracking techniques in Google Analytics,- introduction to Google Tag Manager,- tag and event management.3. Google Search Console and SEO Tools:- obtaining information from Google Search Console,- use of SEO tools in internet data analysis.4. Data visualization:- use of Power BI in data analysis,- using Power Pivot in Excel to model data,- basics of data visualization in Tableau.5. Looker Studio:- designing and creating reports in Looker Studio,- integration of data from various sources.</p> <p>The student discusses these issues during consultations with the course instructor</p> |                                                                                                                                                                                                                                                              |                                         |
| Prerequisites and co-requisites | Knowledge of the basics of e-business.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                              |                                         |

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| Assessment methods and criteria                                | Subject passing criteria     | Passing threshold                                                                                                                                                                                                                                               | Percentage of the final grade |
|                                                                | website audit                | 51.0%                                                                                                                                                                                                                                                           | 25.0%                         |
|                                                                | business data visualization  | 51.0%                                                                                                                                                                                                                                                           | 25.0%                         |
|                                                                | Google Analytics certificate | 51.0%                                                                                                                                                                                                                                                           | 50.0%                         |
| Recommended reading                                            | Basic literature             | 1. Edmondson M., <i>Google Analytics od podstaw. Analiza wpływu biznesowego i wyznaczanie trendów</i> , Helion, Gliwice 2023<br>2. Deckler G., <i>Pierwsze kroki w Power BI. Kompletny przewodnik po praktycznej analizie biznesowej</i> , Helion, Gliwice 2023 |                               |
|                                                                | Supplementary literature     | Zastrożna M., <i>Godzina dziennie z Web Analytics. Stwórz dobrą strategię e-marketingową</i> , Helion, Gliwice 2022<br>Wach D., <i>Wykorzystanie technologii Real-Time Bidding w e-handlu</i> , Studia i Materiały ITiHM, nr 9, Gdańsk 2012                     |                               |
|                                                                | eResources addresses         |                                                                                                                                                                                                                                                                 |                               |
| Example issues/<br>example questions/<br>tasks being completed |                              |                                                                                                                                                                                                                                                                 |                               |
| Work placement                                                 | Not applicable               |                                                                                                                                                                                                                                                                 |                               |

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