University of Gdańsk

Subject card

Subject name and code	Application of Computers in Economic Analysis, PG_00199047		
Field of study	Economics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
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	mgr Marcin Hofman	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	15.0	0.0	15.0	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	0.0	20.0	50

Subject objectives

C1. To familiarise students with methods of analysing and interpreting data used in e-commerce and with key indicators applied to assess sales and marketing performance.

C2. To develop students' ability to calculate, interpret and apply e-commerce and digital marketing metrics, particularly CR, AOV, CAC, CLV/LTV, ROI, ER, CTR, CPM, CPC and CPA, in business decision-making.

C3. To develop practical skills in using Business Intelligence tools, particularly Power BI, to integrate, analyse and visualise data and to create reports and dashboards supporting e-commerce management.

C4. To prepare students to evaluate the effectiveness of marketing and influencer marketing campaigns, analyse consumer behaviour and identify factors affecting the profitability of digital business activities.

C5. To develop the ability to formulate business conclusions and recommendations based on data, performance indicators and analytical results.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[EKONL3_W11] knows the general principles for the creation and development of forms of individual entrepreneurship, using knowledge of economics, finance and management sciences	He/she can gather and analyze economic data in spreadsheets within the company, using software for evaluating the economic efficiency of business operations, constructing scenario variants, and presenting results. He/she has knowledge of methods for representing economic phenomena using spreadsheet tools.	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[EKONL3_W06] has an advanced knowledge of selected methods and tools, including statistical and econometric techniques, for describing economic agents and structures as well as social institutions and the processes taking place in them	The student has knowledge of efficient and effective use of spreadsheet software for conducting analyses of socio-economic processes.	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[EKONL3_U06] uses the knowledge acquired in economics, finance and management to solve economic and social dilemmas arising in the professional context	He/she can build custom spreadsheets to support typical operations of a company.	[SU5] implementation of a problem task
[EKONL3_U01] can correctly interpret economic and social phenomena and apply knowledge of economics, finance and management sciences to explain economic phenomena	Student can use spreadsheet functions to calculate economic quantities, understands economic terminology, and can find equivalents of economic concepts among programmed spreadsheet functions.	[SU5] implementation of a problem task [SU8] observation of student's independent or team work
[EKONL3_K02] is aware of the level of knowledge in the field of economics and understands the need to deepen and update this knowledge throughout life	He/she can work in a group by selecting optimal tools to solve a given problem.	[SK8] observation of student's independent or team work
[EKONL3_U07] is able to participate in analyses and evaluations of alternative solutions to economic and social problems and to choose the methods and instruments to resolve them rationally	He/she can use tools to support financial data analysis and scenario analysis (e.g., Solver, custom filters), utilize pivot tables for variant analysis, and prepare economic scenarios for company activities in finance, credit, sales, production, and efficiency indicators using spreadsheets.	[SU5] implementation of a problem task [SU6] demonstration of practical skills
[EKONL3_K05] correctly identifies, diagnoses and resolves professional dilemmas and different options for solutions	He/she can evaluate data using spreadsheets while considering legal requirements in the scope of financial reporting for enterprises.	[SK2] presentation/project/paper/ report [SK5] implementation of a problem task
[EKONL3_K04] is willing to think and act in an entrepreneurial manner; adapts to new situations and conditions, takes on the challenges of creative thinking, is resilient in the face of failure, is able to identify risks and assess the risks of failure	The student can actively expand their knowledge by independently combining various spreadsheet tools to create solutions tailored to specific situations.	[SK5] implementation of a problem task [SK6] demonstration of practical skills
[EKONL3_U02] is able to use the knowledge of theory and data to analyse concrete economic and social processes and phenomena and to analyse these phenomena using methods developed in economics, finance and management sciences	He/she can use external data, process them in a spreadsheet, visualize numerical data describing economic processes in enterprises, build custom lists, formulas, and functions to enable economic interpretation of economic phenomena.	[SU5] implementation of a problem task

<table>
<tr><td>Subject contents</td><td>Introduction to E-commerce Data Analysis – the importance of data in the digital economy and e-commerce; data sources in e-commerce enterprises; the use of data in decision-making processes.

Key E-commerce Performance Indicators – Conversion Rate (CR), Average Order Value (AOV), Customer Acquisition Cost (CAC), and Return on Investment (ROI); interpretation of indicators and their use in assessing the effectiveness of online business activities.

Long-term Customer Value Indicators – Customer Lifetime Value (CLV/LTV), the CLV-to-CAC ratio, assessment of customer profitability, and the Break-Even Point.

Sales Funnel and User Behaviour Analysis – stages of the purchasing process: website visit, product viewing, adding products to the shopping cart, initiating checkout, and completing a purchase; analysis of the Add-to-Cart Rate and Cart Abandonment Rate.

Profitability Analysis of E-commerce Marketing Activities – the use of CAC, CLV, ROI, CR, and AOV in evaluating marketing campaigns and making budget allocation decisions.

Sales and Demand Forecasting – the use of historical data to forecast sales, identify seasonality, and support decisions related to inventory planning and business operations.

Business Intelligence in E-commerce – Application of Power BI – the concept and role of Business Intelligence systems; integration of data from various sources; data processing and visualisation; creation of interactive reports and dashboards supporting business decision-making.

Creating Analyses and Visualisations in Power BI – data import and preparation, building a sales funnel, analysing marketing campaigns, creating LTV measures, KPI cards, and charts presenting sales forecasts.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Project</td><td>51.0%</td><td>30.0%</td></tr>
<tr><td>Exercises</td><td>51.0%</td><td>20.0%</td></tr>
<tr><td>Exam</td><td>51.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Borkowski P., Excel w finansach i zarządzaniu, ODiTK 2007. A.Loren, Excel-praktyczne zastosowania w biznesie, Helion, Gliwice 2005. J.Walkenbach, Excel 2007, Helion, Gliwice 2007.

Arnold J., Poznaj Microsoft Power BI. Przekształcanie danych we wnioski, APN Promise, Warszawa 2023.

Bendle N.T., Farris P.W., Pfeifer P.E., Reibstein D.J., Marketing Metrics: The Manager’s Guide to Measuring Marketing Performance, 4th ed., Pearson, 2021.</td></tr>
<tr><td>Supplementary literature</td><td>Ehrenmueller-Jensen M., Modelowanie danych przy użyciu Microsoft Power BI, APN Promise, Warszawa 2025.

Ferrari A., Russo M., Analyzing Data with Power BI and Power Pivot for Excel, Microsoft Press, 2017.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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