Subject card

Subject name and code	Analysis of Business Models and Data, PG_00178113		
Field of study	Informatics and Econometrics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	Bachelor’s studies	Subject group	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 Polish
Semester of study	5	ECTS credits	7.0
Learning profile	academic	Assessment form	exam

Conducting unit	Department of Econometrics -> Faculty of Management -> Rector	
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Anna Zamojska, prof. UG
	Teachers	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	15.0	0.0	0.0	75
	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	75	4.0	96.0	175

Subject objectives	Gain practical skills for analysing datasets, modelling their interdependencies, and visualising data and the obtained results.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[IiEL3_U06] The student can use and integrate knowledge of management and quality sciences, economics, and finance to resolve dilemmas and complex problems that arise in professional work.	The student is able to combine his/her knowledge of management, economics and finance and apply appropriate methods of data analysis and business modeling to solve decision-making problems occurring in business practice.	[SU4] test/exam - oral or written
[IiEL3_U04] Students can build and interpret models of economic and social phenomena and processes for decision-making processes.	The student is able to apply appropriate data analysis methods and build and interpret a business model reflecting a selected economic or social phenomenon, taking into account its application in managerial decision-making.	[SU2] presentation/project/paper/report
[IiEL3_W03] To an advanced degree, the student knows and understands how an organization functions, the phenomena, processes and relationships occurring in its environment, and their impact on its functioning.	The student identifies and analyses complex phenomena, processes, and relationships occurring within an organisation and in its environment based on empirical data and explains their impact on the organisation's functioning using business models.	[SW4] test/exam - oral or written
[IiEL3_U03] Students can obtain data from appropriately selected sources, use these data to solve economic and social problems, and process and interpret them using econometrics, informatics or statistics tools.	The student is able to creatively analyse the acquired data, compare it with existing theories, and propose new solutions. Then clearly and communicatively present the results of the analyses in verbal and written form.	[SU2] presentation/project/paper/report
[IiEL3_W04] The student has advanced knowledge and understanding of human roles, places, and behaviour in organizations or projects, both as individuals and in group and organizational dimensions.	The student analyses data on individual and group behaviours within an organisation, identifies behavioural patterns, and interprets their impact on organisational functioning and project implementation using business models and analytical tools.	[SW2] presentation/project/paper/report
[IiEL3_U02] Students can select or construct econometrics, informatics or statistics tools and apply them to describe and solve economic and social problems.	The student is able to select appropriate data analysis methods and statistical, IT and/or econometric tools, and then apply them to build business models to solve economic and social problems.	[SU4] test/exam - oral or written

Subject contents

1. Data mining: data sources, business data acquisition methods, data compilation, time series versus cross-sectional series, and absolute versus relative capture.
2. Data visualisation - presentation of analysis results (temporal, hierarchical, network, multidimensional visualisations), examples of data visualisation tools (e.g. Power BI, Tableau); potential errors in communicating information.
3. Survey data analysis: specifics of survey research, problems of cross-sectional data sets, sample specifics, homogeneity and heterogeneity, influential and outlier observations, missing data, non-random samples.
4. Sales data analysis: Calculating the optimal offer, determining customer value, and applying the economic order quantity model.
5. Demand analysis: estimating the demand curve, pricing related products, predicting customer behaviour, product/customer segmentation, modelling stock levels under uncertain demand.
6. Analysis of qualitative phenomena: binary variable models, among others.
7. Scoring: credit, marketing, debt collection.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	51.0%	50.0%
Project	51.0%	50.0%

Recommended reading

Basic literature

1. Cameron A.C., Trivedi P.K. (2005), Microeconometrics, Cambridge University Press, http://cameron.econ.ucdavis.edu/mmabook/mma.html
2. Gruszczyński M. (2012), Mikroekonometria, Wolters Kluwer.
3. Gruszczyński M. (2014), Zbiór zadań z mikroekonometrii, Wolters Kluwer.
4. Koop G. (2011), Wprowadzenie do ekonometrii, Wolters Kluwer.

Supplementary literature

1. Borooah K.V. (2002), Logit and Probit: Ordered and Multinominal Models. SAGE Publications Inc.
2. Woolridge J.M. (2012), Introductory Econometrics. A Modern Approach, South-Western Cengage Learning.

eResources addresses

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

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