

**Subject card**

<b>Subject name and code</b>	Microdata Analysis, PG_00204580						
<b>Field of study</b>	Informatics and Econometrics						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	4	<b>ECTS credits</b>			7.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			exam		
<b>Conducting unit</b>	Department of Econometrics -> Faculty of Management -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Anna Zamojska				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	15.0	30.0	30.0	0.0	0.0	75
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM		
	<b>Number of study hours</b>	75	4.0	96.0	175		
<b>Subject objectives</b>	Gain practical skills in analysing microdata sets of quantitative and qualitative variables and modelling their interdependencies.						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>		<b>Method of verification</b>		
	[liEMU2_U03] Is able to obtain and verify data from properly selected sources and to collect, process, and visualize it using modern econometrics, informatics or statistics tools		The student creatively analyses the acquired data, compares it with existing theories, and proposes new solutions. Then, the student clearly and communicatively presents the results of the analyses in verbal and written form.		[SU2] presentation/project/paper/report [SU6] demonstration of practical skills		
	[liEMU2_W06] Possesses a structured understanding of the processes, methods, and tools necessary for the design, creation, development, and provision of suitable conditions for informatics, econometrics or statistics tools		Students demonstrate their knowledge by demonstrating familiarity with the identification of the process generating the data, applying the appropriate estimation method and performing a robustness test of the proposed methodological approach.		[SW4] test/exam - oral or written [SW2] presentation/project/paper/report		
	[liEMU2_U01] Can creatively and profoundly analyze complex social and economic processes using structured knowledge, econometrics, informatics, or statistics tools		The student uses microeconomic data and constructs advanced microeconomic models, which he estimates using appropriately selected estimation methods.		[SU2] presentation/project/paper/report [SU4] test/exam - oral or written		

Subject contents	<ol style="list-style-type: none"> <li>1. Central issues in microeconometrics: cross-sectional data regression model assumptions, interaction effects, endogeneity, and heterogeneity.</li> <li>2. Microdata estimation methods used in microeconometrics: non-linear least squares method, instrumental variables method, generalised least squares method</li> <li>3. Multiple regression analysis with qualitative variables. Recording qualitative information in an econometric model, a qualitative independent variable (interpretations and interactions between qualitative variables), and a qualitative (binary) dependent variable (linear probability model). From theory to practice - the impact of qualitative characteristics (gender, work experience, participation in a skills programme) on pay, the hedonic price model.</li> <li>4. Problems of cross-sectional data sets. Specifics of survey research. Specifics of the sample, its homogeneity and heterogeneity, influential and outlier observations, missing data, and non-random samples. From theory to practice: modelling demand for cigarettes and R&amp;D expenditure intensity versus firm size.</li> <li>5. Models of binomial qualitative variables. Model forms (linear probability model, logit, probit), differences and similarities, interpretation of structural parameters, marginal and average measures. Concept of estimation and measures of model fit to empirical data. The problem of unbalanced samples versus model fit. From theory to practice - credit risk and insurance risk assessment.</li> <li>6. Constrained variable models. The tobit model, truncated regression, and sample selection models. From theory to practice - modelling market entry opportunities, credit scoring, and dividend payout.</li> <li>7. Numerator variable models. Poisson and negative binomial regression models test for over-dispersion of the explanatory variable. From theory to practice - modelling the number of car accidents, demand for medical care, and identification of innovation factors in companies.</li> <li>8. Duration models. Truncated observations, definition of survival functions, life tables, problems of specification, estimation and validation of duration models (Kaplan-Meier estimator, Cox hazards model). From theory to practice - customer migration analysis.</li> <li>9. Impact effect evaluation: definition of impact effect, principles of creating an impact effect estimator, statistical properties of the estimator.</li> </ol>		
Prerequisites and co-requisites	Students should have knowledge and skills in applying mathematical statistics and classical econometrics methods to model economic phenomena.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	51.0%	50.0%
	Written exam	51.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Cameron A.C., Trivedi P.K., Microeconometrics. Methods and applications, Cambridge University Press, 2005</li> <li>2. Doman M., Doman R., Modelowanie zmienności i ryzyka, Wolters Kluwer, wydanie II, Kraków 2009</li> <li>3. Gruszczyński M. i in., Mikroekonometria. Modele i metody analizy danych indywidualnych, Wolters Kluwer, wydanie II, Warszawa 2012</li> <li>4. Koop G., Wprowadzenie do ekonometrii, Wolters Kluwer, Warszawa 2011</li> </ol>	
	Supplementary literature	<ol style="list-style-type: none"> <li>1. Borooah K.V. (2002), Logit and Probit: Ordered and Multinomial Models. SAGE Publications Inc.</li> <li>2. Woolridge J.M. (2012), Introductory Econometrics. A Modern Approach, South-Western Cengage Learning.</li> </ol>	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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