University of Gdańsk

Subject card

Subject name and code	Microdata Analysis, PG_00204580		
Field of study	Informatics and Econometrics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Master'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	2	Language of instruction	Polish
Semester of study	4	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	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	30.0	30.0	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 in analysing microdata sets of quantitative and qualitative variables and modelling their interdependencies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[IiEMU2_U01] Can creatively and profoundly analyze complex social and economic processes using structured knowledge, econometrics, informatics, or statistics tools	The student is able to use microeconomic data and construct advanced microeconometric models, which are estimated using appropriately selected estimation methods.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[IiEMU2_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
[IiEMU2_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	Student can creatively analyze acquired data, compare it with existing theories, and propose new solutions. Student can clearly and communicatively present the results of their analyses, both verbally and in writing.	[SU2] presentation/project/paper/ report [SU6] demonstration of practical skills

<table>
<tr><td>Subject contents</td><td>1. Central issues in microeconometrics: cross-sectional data regression model assumptions, interaction effects, endogeneity, and heterogeneity.
2. Microdata estimation methods used in microeconometrics: non-linear least squares method, instrumental variables method, generalised least squares method
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.
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&D expenditure intensity versus firm size.
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.
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.
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.
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.
9. Impact effect evaluation: definition of impact effect, principles of creating an impact effect estimator, statistical properties of the estimator.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Students should have knowledge and skills in applying mathematical statistics and classical econometrics methods to model economic phenomena.</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 with presentation</td><td>51.0%</td><td>25.0%</td></tr>
<tr><td>Written exam</td><td>51.0%</td><td>75.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>1. Cameron A.C., Trivedi P.K., Microeconometrics. Methods and applications, Cambridge University Press, 2005
2. Doman M., Doman R., Modelowanie zmienności i ryzyka, Wolters Kluwer, wydanie II, Kraków 2009
3. Gruszczyński M. i in., Mikroekonometria. Modele i metody analizy danych indywidualnych, Wolters Kluwer, wydanie II, Warszawa 2012
4. Koop G., Wprowadzenie do ekonometrii, Wolters Kluwer, Warszawa 2011</td></tr>
<tr><td>Supplementary literature</td><td>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.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<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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