GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Distribuction of income and wealth, PG_00050009		
Field of study	Economic Analytics		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish Polish
Semester of study	3	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Katedra Statystyki i Ekonometrii -> Faculty of Management and Economics		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Stanisław Kot	
	Teachers	prof. dr hab. Stanisław Kot	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	8.0	0.0	16.0	0.0	0.0	24
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	24	6.0	45.0	75

Subject objectives

The course aims to acquaint students with the methods of analysing income distributions and their particular aspects, such as inequality, poverty and welfare. The most important theoretical forms of the distributions and the methods of estimating their parameters are presented. A project is the base of receiving a credit for the course. Minimum two-person and maximum four-person teams elaborate the project.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U08] has the ability to implement analytical methods to independently propose solutions to economic problems and verify their effectiveness	Students know the methods of analysing income distributions.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject
[K7_W10] has an in-depth knowledge of quantitative methods to describe and analyse socio-economic processes using information technology	Students can apply the statistical methods of analysing income distributions to assess income inequality, poverty and welfare.	[SW3] Assessment of knowledge contained in written work and projects

Subject contents	1. Income, wealth, welfare • The classification of incomes • The social welfare function 1. The statistical description of income distribution • Nonparametric (histogram, kernel) • Parametric 1. The descriptive measures of economic inequality • The Lorenz function. • Inequality measures (the Gini index, the Pietra index, the generalised entropy index, the generalised Gini index). • The decomposition of inequality indices. 1. Normative aspects of economic inequality • The axioms of inequality measures • The constant inequality aversion utility function • The Atkinson inequality index • The abbreviated functions of social welfare • Inequality and welfare 1. The measurement of poverty • The poverty line • The FGT poverty indices • The problem of decomposition of poverty measures 1. The sources of statistical income data • Household budget surveys • Equivalence scales 1. Theoretical income distributions • The Pareto distribution • The lognormal distribution • The theories of income distributions genesis • The generalised Beta distribution of the second kind • The Dagum distribution • The Singh-Maddala distribution • The Fisk distribution 1. Estimating and testing theoretical income distributions • The maximum likelihood method • The goodness-of-fit tests 1. The measurement of inequality aversion • The dilemma: how much equality and how much effectiveness? • The leaky bucket experiment • Other methods of measuring inequality aversion 1. International comparisons of income distributions • The problem of statistical data comparability • Databases 1. The World income distribution • Shorrocks-Wans method • The clone method 1. World economic inequality 2. World economic poverty 3. From income distributions to welfare distributions
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	60.0%	100.0%

Recommended reading

Basic literature	Kleiber, C., and S. Kotz. 2003. *Statistical Size Distributions in Economics and Actuarial Sciences.* New Jersey: John Wiley & Sons, Inc. Kot, S.M., Ostasiewicz, K. (2019) Global and Regional Economic Inequality: Methods and evidence. Wroclaw, Publ. House of Wroclaw University of Economics. Lambert, P.J. (2001). *The distribution and redistribution of income: a mathematical analysis.* Manchester: Manchester University Press.
Supplementary literature	Jenkins, S.P. (2007). gb2fit: Stata module to fit Generalized Beta of the Second Kind distribution by maximum likelihood. *Statistical Software Components Archive,* S456823. Kot S.M. (2023) *Nonstandard Equivalence Scales and their Applications for European Union Countries.* Gdansk, Gdańsk University of Technology Publishers.

	eResources addresses	Adresy na platformie eNauczanie: Rozkłady dochodów i dobrobytu (niestacjonarne) - Nowy - Nowy - Moodle ID: 23897 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23897
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	