Kielce University of Technology

FACULTY OF MANAGEMENT AND COMPUTER MODELLING

COURSE SPECIFICATION

Course code	full-time studies	**Z-ZB-E-204**
	part-time studies	**-**
Course title in English	**Fundamentals of statistics and econometrics**	
Course title in Polish	**Podstawy statystyki i ekonometrii**	
Valid from academic year	**2025/2026**	

PLACEMENT IN THE TEACHING PROGRAM

Programme of study	**BUSINESS MANAGAMENT**
Level of education	**1ˢᵗ degree**
Studies profile	**academic**
Form and mode of study	**full-time programme**
Scope	**all**
Academic unit responsible for the course	**Department of Economics and Finance**
Course coordinator	**dr Katarzyna Brzozowska-Rup**
Approved by	**dr hab. inż. Dariusz Bojczuk, prof. uczelni**

GENERAL CHARACTERISTIC OF THE COURSE

Teaching block		**Subject of general education**
Course status		**Obligatory**
Language of instruction		**English**
Semester of delivery	full-time studies	**Semester II**
	part-time-studies	**-**
Prerequisites		**Knowledge and skills in mathematics at secondary school level**
Exam (YES/NO)		**YES**
ECTS		**5**

Method of conducting classes		lecture	classes	laboratory	project	other
Number of hours per semester	full-time	**30**		**15**	**15**	
	part-time					

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LEARNING OUTCOMES

Category	Outcome code	Course learning outcomes	Reference to the directional learning effect
Knowledge	W01	The student knows and understands the concepts and methods of analysis in statistics. They possess statistical knowledge useful for solving basic business problems.	ZB1_W06 ZB1_W11
	W02	The student knows and understands the concepts and methods of analyzing the interdependence of phenomena, constant regularities and the essence of historical evolution.	ZB1_W02 ZB1_W06 ZB1_W09
Skills	U01	The student is able to select an appropriate statistical method for analyzing a specific business problem. They can develop and present the obtained results using appropriate tools.	ZB1_U01 ZB1_U02 ZB1_U05
	U02	The student is able to formulate and provide answers to analytical questions corresponding to specific business objectives.	ZB1_U03
	U03	The student is able to build and maintain interpersonal relationships.	ZB1_U08
Social competences	K01	The student is able to work and communicate in a group and to defend their own views while respecting other opinions and positions.	ZB1_K03
	K02	The student is able to think entrepreneurially and seek a beneficial solution to a conflict. Understands the need for lifelong learning.	ZB1_K02 ZB1_K04 ZB1_K07
	K03	The student possesses strong communication skills and is aware of the role of statistical analyses in solving cognitive and practical problems in managerial activities.	ZB1_K01 ZB1_K08

COURSE CONTENT

Method of conducting classes	Course content
lecture	Basic statistical concepts: general population, sample, statistical feature. Data sources; types of statistical studies, sampling scheme and frame, random and non-random errors. Tabular and graphical presentation of statistical analysis results. Numerical characteristics of a population structure (measures of central tendency, variability, asymmetry, concentration). Analysis of interdependence of features (correlation and regression). Estimation of the regression model using the classical least squares method. Model fit measures. Testing the significance of parameters. Examination of selected properties of the random component. Linear trend. Random variable, its distribution, parameters. Selected types of distributions: binary, binomial, normal. Stochastic simulation method. Central limit theorem.
laboratory	The aim of the laboratories is to familiarize students with the practical application of methods indicated in the lecture. Theory is combined with business data analyses conducted in the Microsoft Excel and the Gretl program. Solving real tasks in the field of knowledge discovery from data, using the techniques and tools learned for statistical data analysis, applying correlation and regression analysis methods to examine relationships between variables, and visualizing data.
project	Selected methods for presenting and evaluating statistical information. Statistical methods in comprehensive data analysis, including structure analysis (empirical distributions, frequency distributions) and the discovery and examination of relationships between variables. Application of selected tools for demand analysis. Statistical risk models. Presentation of reports from performed analyses on real data sets.

METHODS FOR VERIFYING LEARNING OUTCOMES

Outcome code	Learning outcomes verification methods					
	Oral examination	Written examination	Test	Project	Report	Other
W01		X	X		X	X
W02		X	X		X	X
U01			X		X	X
U02			X		X	X
U03					X	X
K01						X
K02						X
K03						X

FORM AND CONDITIONS OF ASSESSMENT

Form of classes	Assessment type	Assessment Criteria
lecture	Examination	Achieving at least 50% of the points for the written exam.
laboratory	Credit with grade	Partial tests, student activity during classes. The basis for passing the laboratory is obtaining at least 50% of the maximum possible points that can be earned during the classes.
project	Credit with grade	Presentations of papers, preparation of reports and student activity during classes.

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STUDENT WORKLOAD

No.	Activity type	Student workload					Unit
		full-time					
		W	C	L	P	S	
1.	Scheduled contact hours	30		15	15		h
2.	Other (consultations, exams)	4		2	2		h
3.	**Total number of contact hours**	**68**					h
4.	**Number of ECTS credits for contact hours**	**2,7**					ECTS
5.	**Number of hours of independent student work**	**57**					h
6.	**Number of ECTS points that a student obtains through independent work**	**2,3**					ECTS
7.	**Workload related to practical classes**	**63**					h
8.	**Number of ECTS credit points which a student receives for practical classes**	**2,5**					ECTS
9.	**Total number of hours of a student's work**	**125**					
10.	**ECTS credits for the course** *1 1 ECTS credit =25 student learning hours*	**5**					ECTS

W - LECTURE   C – CLASSES   L – LABORATORY   P- PROJECT   S – SEMINAR

READING LIST

1. Mc Clave J.T., Benson P.G, Sincich T., (2019), Statistics for Business and Economics, 14th Edition, Cengage Learning.
2. Adkins L.C, (2018), Using gretl for Principles of Econometrics, 5th Edition, ebook.
3. Knight, G., (2007), Analyzing Business Data with Excel: Forecasting, Statistics, and Data Managemen, O'Reilly Media.