University of Gdańsk

Subject card

Subject name and code	Computation Programming II, PG_00119655						
Field of study	Economics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Specialty subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Jakub Kwiatkowski				
	Teachers		dr Jakub Kwiatkowski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	0.0	0.0	15
	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	15		0.0		0.0	15
Subject objectives	Acquiring knowledge and skills in creating advanced analyzes and data visualizations using Python.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[EKONMU2_W06] knowsin advanced stage statistical and econometric methods and tools for description and macro- and microeconomic modelling of economic structures and public institutions and processes occurring in them	Knows and understands data processing methods and algorithms as well as the possibilities and ways of their application in the field of macro- and microeconomic description of economic structures and public institutions and the processes occurring in them	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
[EKONMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance and management sciences	Is able to process and visualize data using Python for the purpose of explaining economic and social phenomena and the relationships between them	[SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work
[EKONMU2_U15] can independently expand and improve acquired knowledge and skills in economics; is open to new ideas and techniques; tends to learn using any accessible method and to interact with other participants of the learning process	Is able to independently supplement and improve acquired knowledge and skills in the field of methods, algorithms and data processing tools for the purposes of analyzing and explaining economic and social phenomena	[SU2] presentation/project/paper/ report
[EKONMU2_U04] can forecast and model complex economic and social processes using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics)	Is able to perform statistical calculations for the purposes of forecasting and modeling economic and social processes using appropriate Python libraries	[SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work
[EKONMU2_U03] can analyse causes and course of economic and social processes and phenomena, formulate his/her own opinions on the subject, construct research hypotheses, and select and apply methods of their verification	Is able to select appropriate data analysis methods and algorithms for a specific problem and implement data processing algorithms in Python	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[EKONMU2_K02] is aware of the level of their knowledge in the area of solving complex problems in economic,; understands the need to extend and update this knowledge throughout his/her life	Is aware of the level of his knowledge and skills in the field of data processing using Python to solve economic problems, understands the need to deepen and update this knowledge and increase skills throughout life	[SK2] presentation/project/paper/ report
[EKONMU2_K01] recognises the importance of knowledge in the field of economics in the process of identifying and solving economic problems and of consulting experts when having difficulties in solving them independently	Recognizes the importance of knowledge in the field of economics and statistics in the process of solving economic problems using Python and seeking the opinion of experts in case of difficulties in solving them on their own	[SK2] presentation/project/paper/ report
[EKONMU2_U08] can independently analyse economic and social phenomena and processes, and can perform a theoretically deepened assessment of such phenomena, using appropriately selected research method	Is able to independently analyze economic and social phenomena and processes using Python	[SU2] presentation/project/paper/ report

Subject contents

Working with the Pandas library.Programming calculations using the NumPy and SciPy libraries.Visualization of calculation results - exercises using the Matplotlib, Plotly, Seaborn libraries

Prerequisites and co-requisites

Passed subject: Computational programming I

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
tasks performed by the student	51.0%	50.0%
final project	51.0%	50.0%

Recommended reading	Basic literature	Johansson R, Matematyczny Python. Obliczenia naukowe i analiza danych z użyciem NumPY, SciPy, Matplotlib, Helion, Gliwice 2021. McKinney W., Python w analizie danych : przetwarzanie danych za pomocą pakietów Pandas i NumPy oraz środowiska IPython,Helion, Gliwice 2018
	Supplementary literature	Baranowski P., Doryń W., Przetwarzanie danych i uczenie maszynowe w języku Python. Aplikacje w ekonomii i zarządzaniu , Instytut Badań Gospodarczych, Olsztyn 2020.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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