



## Subject card

Subject name and code	Foundations of Capital Markets Analysis, PG_00047414						
Field of study	Informatics						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study 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	1	Language of instruction			English		
Semester of study	2	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Marine Electronic Systems -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marcin Gnyba					
	Teachers	dr hab. inż. Marcin Gnyba					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	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	2.0		8.0	25	
Subject objectives	Students will possess some knowledge in the area of approximation theory for the analysis and comparison of quotation from financial markets, and construction of indicators for investment purposes.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W04] Knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
	[K7_W01] Knows and understands, to an increased extent, mathematics to the extent necessary to formulate and solve complex issues related to the field of study.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
	[K7_W42] Knows and understands, to an increased extent, the principles and trends in the analysis and design of local and distributed IT systems and the basics of computer modeling and computerization of complex cognitive and decision-making processes.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
	[K7_W41] Knows and understands, to an increased extent, the standards, production methods, life cycle and development trends of software as well as information systems and applications.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge
[K7_W43] Knows and understands, to an increased extent, the nformal, technical and social aspects of the operation of complex information systems in the information society and in the global information n infrastructure.	Student is capable of deriving trends in capital and FOREX markets. He understands basic principles of investing.	[SW1] Assessment of factual knowledge	
Subject contents	<ol style="list-style-type: none"> <li>1. Introduction to capital markets</li> <li>2. Return rate, effective return</li> <li>3. Classification of financial instruments</li> <li>4. Standard methods of market analysis</li> <li>5. Foundations of approximation theory</li> <li>6. Complete and incomplete system for vectors</li> <li>7. Scalar product, properties, interpretation</li> <li>8. Scalar product for signals, orthogonality</li> <li>9. Norms of error in linear space, properties</li> <li>10. Correlation and covariance coefficient, normalization in L2</li> <li>11. Approximation in L2 space</li> <li>12. Properties of solution in L2</li> <li>13. Fourier series in capital markets</li> <li>14. Autocorrelation function – acf and cross-correlation function – ccf</li> <li>15. Strategies of investing in capital marke</li> </ol>		
Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Colloquium	51.0%	100.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>[1] any manual on numerical analysis</li> <li>[2] J.W. Tadion, „Deciphering the Market” WILEY 1996.</li> <li>[3] Manual for Matlab programming language</li> <li>[4] any manual on approximation theory</li> <li>[5] John, J. Murphy "Technical Analysis of Financial Markets", New York Institute of Finance, 1999</li> </ol>	

	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Fundamental Analysis of Markets  2. Technical Analysis of Markets	
Work placement	Not applicable	