University of Silesia in Katowice

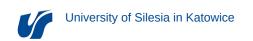| 1.	Field of study	**Econophysics**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2019/2020 (winter term), 2020/2021 (winter term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Code of the learning outcome of the programme	Learning outcomes The graduate:	Codes of the second-order PRK characteristics to which the learning outcome of the programme is related
KNOWLEDGE		
KEF_W01	has an extended knowledge of the importance of economics, physics and econophysics as an interdisciplinary science on the applications of physics methods in economics	2018_P7S_WK
KEF_W02	knows the methods and the manners of use of discrete mathematics and statistical modelling for economic calculations	2018_P7S_WG
KEF_W03	has an in-depth knowledge of physics methods for financial markets: analysis and collection of market data, behaviour and description of financial markets, physics-inspired market models and valuation of financial instruments	2018_P7S_WG
KEF_W04	is familiar with statistical modelling methods in insurance and finance and methods for deterministic and stochastic dynamics	2018_P7S_WG
KEF_W05	knows the elements of number theory, graph theory and calculation theory, and advanced computational techniques supporting the work of an econophysicist and understands their limitations	2018_P7S_WG
KEF_W06	has in-depth knowledge of how game theory is applied to describe the relationship between structures and social institutions	2018_P7S_WG
KEF_W07	is familiar with the numerical methods used by the applied fields (e.g. industrial technologies, management, etc.); is familiar with advanced computational techniques supporting the work of an econophysicist and understands their limitations	2018_P7S_WG
KEF_W08	is familiar with the mathematical basics of information theory, theory of algorithm and cryptography and their practical applications, knows well at least one software package for analytical methods in business and one package for statistical data processing	2018_P7S_WG
KEF_W09	knows the principles of health and safety at work at the sufficient level that allows independent work in the econophysics profession	2018_P7S_WK
KEF_W10	is familiar with the functioning of financial institutions and the associated risks	2018_P7S_WG
KEF_W11	has an in-depth knowledge of selected scientific methods and is familiar with the issues characteristic of the discipline of science not related to the programme	2018_P7S_WK
SKILLS		
KEF_U01	can analyse, assess and exploit risks and uncertainties of complex phenomena and use these skills in economic activities	2018_P7S_UW
KEF_U02	can simulate the price movements of financial instruments, verify hypotheses regarding the behaviour of markets	2018_P7S_UW
KEF_U03	can recognize and counteract the opponent's strategies, can analyse the behaviour of market partners from the point of view of game theory	2018_P7S_UW
KEF_U04	can select an offer on the basis of tender mechanisms	2018_P7S_UW
KEF_U05	can make decisions taking into account risk analysis based on the theory of probability and strategic thinking	2018_P7S_UW
KEF_U06	can negotiate on the basis of universal principles, can apply selected negotiating strategies and has the ability to identify and counter unfair negotiating tactics	2018_P7S_UK
KEF_U07	can simulate random phenomena, the analysis of time series and forecasting	2018_P7S_UW
KEF_U08	can apply basic probabilistic distributions to practical issues	2018_P7S_UW

KEF_U09	can use stochastic processes as a tool for modelling phenomena and analysing their evolution	2018_P7S_UW
KEF_U10	can use statistical tools to estimate and test hypotheses and statistical analysis of economic and social data	2018_P7S_UW
KEF_U11	can work with market analysts, mathematicians, physicians in the analysis of phenomena to develop analysis and evaluation of the size and behaviour of observed phenomena and assess their impact on the company's activities	2018_P7S_UO
KEF_U12	can identify and develop their knowledge	2018_P7S_UO
KEF_U13	speaks sufficient level of English (B2+ level) to comprehensively read the specialist literature	2018_P7S_UK
KEF_U14	has an in-depth ability to prepare a variety of written studies on specific issues in econophysics or cross-disciplinary issues	2018_P7S_UK
KEF_U15	has an in-depth ability to prepare and present an oral presentation on econophysics or interdisciplinary issues in Polish and English, using modern multimedia techniques	2018_P7S_UK
KEF_U16	is able to prepare the elaboration of the study results, including explanation of the aim of the study, adopted methodology, description, analysis and discussion of the results obtained and their significance compared to similar studies	2018_P7S_UW
KEF_U17	can obtain information from literature, databases and other sources, can integrate and interpret the information obtained, draw conclusions and formulate and justify opinions	2018_P7S_UW
KEF_U18	has English skills at B2+ level (CEFR)	2018_P7S_UK
KEF_U19	has an in-depth ability to pose and analyse problems based on the acquired contents from the scientific discipline not related to the programme	2018_P7S_UW
SOCIAL COMPETENCES		
KEF_K01	knows the limitations of their knowledge and understands the need for further education and can inspire other people's learning process	2018_P7S_KK
KEF_K02	is able to precisely formulate questions to deepen their own understanding of a given topic or to find the missing elements of reasoning	2018_P7S_KK
KEF_K03	can work on a team, understands the need to work systematically on any projects that are long-term	2018_P7S_KR, 2018_P7S_UO
KEF_K04	understands and appreciates the importance of intellectual honesty in their own and others' actions; acts ethically	2018_P7S_KR
KEF_K05	understands the need to improve professional and personal competences	2018_P7S_KK
KEF_K06	can formulate opinions and inspire discussions on basic econophysical issues	2018_P7S_KO
KEF_K07	can communicate using different techniques, in the professional environment of economists, financiers and the representatives of science	2018_P7S_KK
KEF_K08	is aware of the responsibility for research initiatives undertaken, understands the social aspects of the application of the acquired knowledge, skills and the related responsibility	2018_P7S_KO
KEF_K09	knows and understands the basic principles of the functioning of financial institutions and the social risks associated with this activity	2018_P7S_KO
KEF_K10	can think and act in terms of entrepreneurship (costs, economic effects, profit and loss account, profitability)	2018_P7S_KO
KEF_K11	understands the need for an interdisciplinary approach to solving problems, integrating knowledge from different disciplines and practising self-education to deepen the knowledge acquired	2018_P7S_KK, 2018_P7S_UU