

1. Course information in compliance with the Study Programme of Management Field

Provided by the Dean of the Faculty

Course Name: Financial Mathematics							Course Code: B9		
Type of studies: Bachelor's degree Full-time, part-time				Profile of education: PRACTICAL			Specialization: All		
Year: 1 Term: 1				Course /module status: basic			Course / module language: English		
Type of classes	Lectures	Practical classes			Total	consultations	ECTS Credits		
		tutorials	laboratory classes	seminars			Classes with lecturer	Own work	Total
Teaching Hours Full time studies	15	30	-	-	45	5	1.8	1.2	3
including practical classes	-	30	-	-	30	3	1,2	0,8	2
Teaching Hours Extra-mural studies	10	20	-	-	30	3	1.2	1.8	3
including practical classes	-	20	-	-	20	2	0,8	1,2	2
Form of examination	pass/exam with a grade								
Course / module Coordinator	dr Paweł Klinga								
Lecturers	dr Paweł Klinga								
Priority effects of the item specified in the Senate resolution			Z_W02, Z_U05, Z_K04						

2. Lecturer tasks

Course learning objectives:

The aim of the course is to master the content of financial mathematics, including subjects requiring knowledge of calculus, such as limits, logarithms, derivatives.

Subject code	Expected learning outcomes	references to the intended learning outcomes for the course <i>Management</i>
Knowledge		
W_01	Students know at an advanced level the methods and tools used in the international market, including the specificity of intercultural and international management allowing for the description of the processes taking place in them. Moreover students know the relations between them and is able to make assessments of the risk and profitability of business or investment activities, including their practical applications.	Z_W02
Skills		
U_01	Students know and understand at an advanced level the legal basis for the functioning of the EU institutions, the scope of their competences and the links between them.	Z_U05
Social competence		
K_01	Students are ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on his own	Z_K04
Topics of particular classes with the number of hours		
LECTURES		
1. Simple interest and discount (3h/2h) 2. Compound interest (4h/3h) 3. Continuous compounding (4h/3h) 4. Annuities (4h/2h)		
Total: 15 h Full time /10 h Part-time lectures in the form of theoretical classes (1.8 /1.2 pkt. ECTS)		
PRACTICAL CLASSES		
1. Computing simple interest and discount in exercises (6h/4h) 2. Computing compound interest, including reverse operations requiring logarithmic functions (8h/6h) 3. Computing continuous compounding, including limits of sequences and solving problems related to Euler's number (8h/6h) 4. Computing annuities, including finding sums of geometric series (8h/4h)		
Total: 30 h Full time / 20 h Part-time practical classes in the form of practical classes (1.2 /1.8 pkt. ECTS)		

Methods of teaching	Information lecture, explanation or clarification. Practical methods: exercises
Assigned Literature	<ol style="list-style-type: none"> 1. Theory and problems of mathematics for economists / Edward T.Dowling 2. Mathematics for economists theory and problems / Edward Dowling 3. R. Brown, P. Zima, Schaum's Outline of Mathematics of Finance, Second Edition (Schaum's Outlines), Schaumas Business Economics, 2020 4. S.J. Garrett, An Introduction to the Mathematics of Finance A Deterministic Approach, Elsevier Ltd 2015
Optional Literature	<ol style="list-style-type: none"> 1. Introductory Financial Mathematics / University of South Africa 2. Financial Mathematics I / Jitse Nielsen 3. S. Shreve, Stochastic Calculus for Finance I: The Binomial Asset Pricing Model (Springer Finance), Springer 2016 4. J. Cvitanic and F. Zapatero, Introduction to the Economics and Mathematics of Financial Markets,RBC Financial Group Professor of Finance 2010

The final evaluation of the student's work on the subject is based on an overview of the student's work and results.

3. Tasks and time of independent student work

Tasks descriptions	Number of hours		ECTS Credits	
	Full-time	Part-time	Full-time	Part-time
The tasks of theoretical	10	15	0,4	0,6
Studying literature	10	15	0,4	0,4
The tasks of a practical nature (of a character skill)	20	30	0,8	1,2
Solving exercises	20	30	0,8	1,2
TOTAL student workload in hours	30	45	1,2	1,8
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4. Methods of verification and documentation of the learning outcomes assessment

Symbol of learning outcomes	Methods of verification and documentation
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W_01	Written exam
U_02	Written test
K_01	Activity during classes

Basic criteria of the final grade:

- Practical exam focused on solving practical tasks in the field of financial mathematics
- Test focused on theoretical knowledge obtained during lectures

Final grade is based on practical exam (80%) and test (20%).

The modular grade consists of 50% of the grade from passing the exercises and 50% of the grade from the exam.