University of Gdańsk

Subject card

Subject name and code	Financial Mathematics, PG_00178609		
Field of study	Finance and Accounting		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group
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	6.0
Learning profile	academic	Assessment form	credit
Conducting unit	Department of Investment and Real Estate -> Faculty of Management -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Anna Wojewnik-Filipkowska	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	30.0	0.0	0.0	60

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	60	4.0	86.0	150

Subject objectives

Introduction to basic rights and principles of financial mathematics essential financial analyst work.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[FiRL3_U02] The student can identify, analyze or design adequate solutions to problems in finance and accounting.	The student applies appropriate financial mathematics techniques to identify and solve practical financial problems, such as investment evaluation or debt repayment.	[SU4] test/exam - oral or written [SU5] implementation of a problem task
[FiRL3_W05] To an advanced degree, the student knows and understands the tools and techniques for obtaining, compiling, and analyzing the data necessary to assess the financial situation of various entities in management, quality sciences, economics, and finance.	The student understands and can explain key concepts related financial mathematics that underline valuation, interest rate mechanics, and investment decision-making.	[SW4] test/exam - oral or written [SW5] implementation of a problem task
[FiRL3_U03] The student can obtain data and verify its accuracy from appropriately selected sources and use these data to analyse and evaluate economic processes and phenomena in management and quality sciences, economics and finance.	The student selects and verifies financial data from appropriate sources and uses it to build and assess cashflow models relevant to economic and financial processes.	[SU4] test/exam - oral or written [SU5] implementation of a problem task

<table>
<tr><td>Subject contents</td><td>1. Interest rates, present value, and future value.
2. Time value of money in finance.
3. Simple interest rates.
4. Present value of a single future payment.
5. Discount factors.
6. Effective and nominal interest rates.
7. Real and money interest rates.
8. Compound interest rates.
9. Relation between the time periods for compound interest rates and the discount factor.
10. Annuities and perpetuities.
11. Debt repayment schedules. Introduction to fixed-income instruments.
12. Generalized cashflow model.
13. Net present value of a sequence of cashflows.
14. Internal rate of return.
15. Investment project appraisal.
16. Examples of cashflow patterns and their present values.
17. Elementary compound interest problems.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>The student is familiar with concepts of mathematics for economies.</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Project/problem solving</td><td>51.0%</td><td>20.0%</td></tr>
<tr><td>Test</td><td>51.0%</td><td>30.0%</td></tr>
<tr><td>Exam</td><td>51.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1. Hastings J. K., 2015, Introduction to financial mathematics, A Chapman and Hall Book.
2. Time value of money, Discounted cash flow application, Introduction to Fixed-Income valuation - CFA Program Curriculum Level I, Volumes 1-6 Willey, CFA Institute, 2019 (and later).</td></tr>
<tr><td>Supplementary literature</td><td>McCutcheon J., Scott, W.F., 1986, An Introduction to the Mathematics of Finance, Elsevier Butterworth-Heinemann, ISBN 0-7506-0092-6.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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