



Subject card

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|---|--|--|--|------------|--|---------|-----|
| Subject name and code | Financial Mathematics, PG_00049700 | | | | | | |
| Field of study | Management | | | | | | |
| Date of commencement of studies | October 2020 | Academic year of realisation of subject | | | 2021/2022 | | |
| Education level | first-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 | 2 | Language of instruction | | | English | | |
| Semester of study | 4 | ECTS credits | | | 3.0 | | |
| Learning profile | general academic profile | Assessment form | | | exam | | |
| Conducting unit | Department of Economic Analysis and Finance -> Faculty of Management and Economics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr Piotr Kasprzak | | | | |
| | Teachers | | dr Piotr Kasprzak | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 30.0 | 0.0 | 0.0 | 0.0 | 30 |
| | 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 | 30 | 6.0 | 39.0 | 75 | | |
| Subject objectives | Introducing students to the basic mathematical concepts and tools used in finance and banking. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_W08] has a basic knowledge of the methods and tools used to conduct research related to particular areas of business activity | | Student knows the mathematical tools used to measure the impact of the time to value of money. | | [SW1] Assessment of factual knowledge | | |
| | [K6_U04] describes financial problems in different areas of the organisation's functioning | | Student can see the financial aspects of the decisions taken in the company. | | [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information | | |
| Subject contents | Time value of money introduction; Simple interest, discount rate, compound interest, continuous compounding; Nominal, equivalent, effective and average rate of interest; Inflation rate and real rate of interest; Valuation of short-term securities (bonds and other securities); Annuity immediate and annuity due ; Perpetuities; Annuities payable more and less frequently than interest is convertible; Payments varying in arithmetic and geometric progression; Repayment of debts analysis Valuation of short and long-term securities; Using a spreadsheet in financial mathematics. | | | | | | |
| Prerequisites and co-requisites | | | | | | | |
| Assessment methods and criteria | Subject passing criteria | | Passing threshold | | Percentage of the final grade | | |
| | Final exam | | 60.0% | | 20.0% | | |
| | Midterm colloquium | | 60.0% | | 80.0% | | |
| Recommended reading | Basic literature | | A. Pascucci, W. J. Runggaldier Financial Mathematics: Theory and Problems for Multi-period Models (UNITEXT) 2012th Edition, Springer 2012 S. Chandra, S. Dharmaraja, Aparna Mehra, R. Khemchandani, Financial Mathematics: An Introduction 1st Edition, Alpha Science International, 2013 D.G. Saari, Mathematics of Finance: An Intuitive Introduction (Undergraduate Texts in Mathematics) 1st ed. 2019, Edition, Springer, 2019 M. B. Miller, Mathematics and Statistics for Financial Risk Management 2nd Edition, Wiley Finance Series, 2018 | | | | |
| | Supplementary literature | | D.R. Chambers, Q. Lu, Introduction to Financial Mathematics With Computer Applications, Chapman and Hall/CRC, 2021 K. J. Hastings, Introduction to Financial Mathematic, Chapman and Hall/CRC, 2015 | | | | |

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| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | Calculation of the future value of investments, credit instalments and expected retirement value. | |
| Work placement | Not applicable | |