Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Mathematics of Finance
Course code	27331
Scientific sector	SECS-S/06
Degree	L-18 Bz
Semester and academic year	1 ; 2022/2023
Year	2022
Credits	6
Modular	No

Total lecturing hours	36
Total lab hours	
Total exercise hours	18
Attendance	Suggested, but not required
Prerequisites	No prerequisites, however it is advisable that the students have basic prior knowledge in statistics as well as in calculus and linear algebra
Course page	https://www.unibz.it/en/faculties/economics-management/bachelor-economics-management/course-offering/

Specific educational objectives	The course refers to the basic educational activities chosen by the student and belongs to the scientific area of Economics and Management. The course gives an introduction to fundamental concepts of finance and basic methods in financial mathematics. Students will learn how to transform a verbally exposed problem into a formula used in financial mathematics.

Lecturer	Dr. Silvia Bressan, silvia.bressan@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/37763-silvia-bressan
Scientific sector of the lecturer	SECS-S/06
Teaching language	English
Office hours	See web page
Lecturing assistant	Not foreseen
Teaching assistant	Not foreseen
List of topics covered	Time value of money and interest rates. Annuities. Debt retirement methods. Risk and return. Bond investing. Capital budgeting

Teaching format	Frontal lectures

Learning outcomes	• Knowledge and understanding: Fundamental concepts of financial mathematics: time value of money and interest rates. Risk and return. Basics of bond investing. Fundamentals of capital budgeting • Applying knowledge and understanding: Formulas that apply the knowledge about the time value of money and interest rates, including formulas for annuities and loan amortization schedules. Application of basic models for capital budgeting. Understanding of the risk-return trade-off with mathematical tools. Bond valuation Making judgments: Being able to choose the appropriate quantitative methods and techniques to be applied in various real-life situations common to the financial industry Communication skills: Ability to explain the results obtained from the solution of financial valuation exercises • Learning skills: Being able to understand and find a solution for a particular financial problem of a particular investor/ corporation using analytical reasoning and quantitative methods.

Assessment	Written exam for attending and non-attending students with theoretical review questions and numerical exercises.
Assessment language	English
Evaluation criteria and criteria for awarding marks	Final mark from exam assessment (100%) Relevant for exam assessment: theoretical knowledge of the concepts covered in class and ability to solve financial problems

Required readings	The lecture slides are mainly based on selected

	chapters from the following textbooks: • Jonathan Berk, and Peter DeMarzo, Corporate Finance, 4th edition, Pearson, 2017. ISBN-13: 9780134083278 (the textbook includes exercises without solution) • Raymond Brooks, Financial Management: Core Concepts, 4th Edition, Pearson, 2019. ISBN-13: 9780134730417 (the textbook includes exercises without solution) • Gary C. Guthrie, and Larry D. Lemon, Mathematics of Interest Rates and Finance: New International Edition, Pearson, 2014. ISBN-13: 9780130461827 (the textbook includes exercises with solution)
Supplementary readings	• Gary Clendenen, and Stanley A. Salzman, Business Mathematics, 14th Edition, Pearson, 2019. ISBN-13: 9780137401604 (the textbook includes exercises with solution)