UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

Department of Economics and Finance

COURSE OF STUDY Statistics and Methods for Economics and Finance
ACADEMIC YEAR 2025-2026
ACADEMIC SUBJECT Risk Management

General information	
Year of the course	II
Academic calendar (starting and ending date)	II semester (16 february 2026 - 05 june 2026)
Credits (CFU/ETCS):	08
SSD	STAT-04/A
Language	Italian
Mode of attendance	Free

Professor/ Lecturer	
Name and Surname	Mauro Gianfranco Bisceglia
E-mail	maurogianfranco.bisceglia@uniba.it
Telephone	
Department and address	Largo Abazia Santa Scolastica Bari
Virtual room	Microsoft Teams: *gq6mq97*
Office Hours (and modalities: e.g., by appointment, on line, etc.)	Weekly as indicated on the professor's webpage, in presence or online

Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
200	*56*		*144*
CFU/ETCS			
08	*08*		

Learning Objectives	Acquisition of quantitative elements and tools necessary to deal with problems and advanced studies in certain and uncertain financial fields. Achieve a good knowledge of risk management present in every managerial decision. Be able to carry out strategic assessments on risky investments, even in an uncertain environment.
Course prerequisites	The student must possess good knowledge in Mathematics for Economics and in Financial Mathematics

Teaching strategie	Lectures. Tutorials.
Expected learning outcomes in terms of	

Knowledge and understanding on:	• Knowledge and understanding: The student must have acquired the knowledge and understanding of the tools and some mathematical models used in economics, statistics and finance for the interpretation of economic-financial risks and for their effective application.
Applying knowledge and understanding on:	• Applying knowledge and understanding: The student must be able to apply the tools and mathematical models learned during the course to tackle problems of various kinds of risks.
Soft skills	• Making judgements: The student must have the ability to make independent judgments on the existence of economic-financial constraints and opportunities within the operating contexts of the various economic entities, on the basis of responsible use of the acquired knowledge and skills. In particular, the student must be able to search for information, data and use interpretative models necessary for the formulation of analyzes of the various risky, economic, financial and managerial problems. • Communication skills: The student will have to acquire excellent communication skills, on subjects under study and analysis, suitable both for conversation between experts and for dissemination, in a clear and effective way, with a good command of the technical language typical of risk management. He will also be able to argue on economic-financial topics. • Learning skills: The student must have developed and acquired aptitudes for updating knowledge and skills in the field of risk management. Attitudes and learning skills that constitute the outcome of a training process that is enhanced with the ability to critically understand the subject.
Syllabus	
Content knowledge	- I – Review of probability calculation, distribution function and density function. Review of the Van, IRR and TRES criteria. Notes on severability, duration and arbitrage. - II – Criterion of the average value of the gain. Utility functions and risk aversion function. Expected utility maximization criterion. Risk aversion and propensity and consequent theorems. Simple and second order stochastic dominance. - III - Mean variance criterion. Markowitz model. Efficient frontier. Indifference curves. sure equivalent. Taylor polynomial. Isoutility curves. Portfolio with two risky stocks. Relationship between correlation and efficient frontier. Wallets with minimal risk. - IV – The market equilibrium model and related theorems. Composite portfolio with n risky securities and one non-risky one. Fundamental theorem of the equilibrium model: Capital Asset Pricing Model (CAPM). Region of opportunities, efficient frontiers and indifference curves. Efficient market. Beta and systematic risk. Portfolio diversification. Arbitrage Pricing Theory (APT). The benchmark in financial management and active and passive management techniques. The analysis and verification of performance attribution and of the financial manager. - V – Market risk. Value at Risk (VaR), methods for calculating VaR. Credit risk, elements of financial options theory. Operational risk, coverage of operational risk. - VI – Applications.
Texts and readings	D.M. Cifarelli, Introduzione al calcolo delle probabilità, Mc Graw-Hill;

	Micocci M. – Masala G.B., Manuale di matematica finanziaria. Metodi e strumenti per il risk management, Carocci Editore; Castellani, De Felice Moriconi, Manuale di Finanza vol I, Il Mulino; P.Pianca, Elementi di teoria delle opzioni finanziarie, G. Giappichelli Editore.
Notes, additional materials	Materials available to students on the professor's webpage.
Repository	

Assessment	
Assessment methods	- The student's learning will be verified through at least one intermediate written test, as well as a final written test and a consequent oral test. - The intermediate test will be held at two thirds of the course and has the purpose of evaluating and verifying the skills acquired by the students on the topics covered up to a week before the same. This test tube will be based on the development of practical topics, and on the solution of exercises that require the application of specific acquired knowledge and skills, as foreseen in the program and explicitly dealt with during the course of the lessons. - The final written test aims to complete the verification of the knowledge acquired by the student, in particular, as regards the application of mathematical and economic models suitable for evaluations even in an uncertain field. - The oral exam will be based on the discussion and in-depth analysis of any questions not correctly addressed in the written exams, as well as the verification of the knowledge of Theorems and analysis on evaluation criteria.
Assessment criteria	- The student must be able to understand the problem submitted, contextualize it precisely in his area of reference and be able to provide the right resolution. The student must also be able to promptly provide the correct definitions of the topics covered, both for the purpose of a precise exposition and a correct interpretation.
Final exam and grading criteria	- The evaluation of the intermediate written test will help to integrate the evaluation of the written test. A judgment will be assigned to the written tests (insufficient, almost sufficient, sufficient, fair, good, excellent). The evaluation of the oral test, expressed out of thirty, will take into account the correct and timely presentation of the questions asked, and will be weighed against the results of the written tests. You will therefore have an overall evaluation out of thirty which will represent the final grade of the exam.
Further information	
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