Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus

Course Description

Course Title	Risk Management and Derivatives
Course Code	25437
Course Title Additional	
Scientific-Disciplinary Sector	STAT-04/A
Language	German
Degree Course	Master in Accounting and Finance
Other Degree Courses (Loaned)	
Lecturers	Prof. Dr. Peter Alfons Schmid, PeterAlfons.Schmid@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/44766
Teaching Assistant	
Semester	Second semester
Course Year/s	2
CP	6
Teaching Hours	36
Lab Hours	6
Individual Study Hours	-
Planned Office Hours	18
Contents Summary	The course Risk Management and Derivatives introduces students to the world of financial risks and the tools to manage them effectively. You will explore how to identify, measure, and hedge market, credit and liquidity risks by applying theory to real-world data. Through hands-on use of the software R, you'll practice techniques like Value-at-Risk, stress testing, and credit risk modeling. Topics range from hedging with derivatives such as options, futures, and swaps to analyzing financial disasters and their lessons. With a mix of analytical methods and practical applications, the course equips you with the skills needed for a career in finance or further academic research.

Course Topics	(A) structure and mechanics of OTC and exchange markets (B) (coherent) risk measures (C) market risk: bond fundamentals, derivatives, introduction to market risk, sources of market risk (interest rate risks, equity risks, currency risks, commodity risks), hedging linear risk (forwards, futures, swaps), nonlinear risk (options), modeling risk factors, Value-at-Risk (VaR) and Conditional Value-at-Risk (CVaR or Expected Shortfall), VaR mapping, historical and parametric VaR estimation, back testing, stress testing and scenario analysis. (D) credit risk: introduction to credit risk, actuarial default risk (credit rating), default risk from market prices (Merton model, bonds with embedded options), credit VaR, expected and unexpected credit losses, credit derivatives, (E) liquidity risk (F) financial disasters and risk management failures (G) climate risk
Keywords	market risk, credit risk, liquidity risk, climate risk, value-at-risk, expected shortfall
Recommended Prerequisites	
Propaedeutic Courses	
Teaching Format	Lectures
Mandatory Attendance	Suggested, but not required
Specific Educational Objectives and Learning Outcomes	ILO (Intended Learning Outcomes) ILO 1 – Knowledge and Understanding: ILO 1.1 Understanding of issues and techniques related to the organisation and financial management of companies and financial intermediaries ILO 1.2 Knowledge of the fundamentals of corporate finance for the correct application, for example, of decision-making models and the management of financial data and risks in treasury management

	ILO 1.3 Understanding of management models and cost-effectiveness of different types of intermediaries, market microstructure, operational efficiency of financial markets, and the impact of financial markets on the economic conditions of intermediaries ILO 1.4 Knowledge of specific Finance topics that characterise the roles of Financial Analyst, Portfolio Manager, Chief Financial Officer (CFO), Administrative Manager, Controller, Internal Auditor, and Business Consultant ILO 2 – Applying Knowledge and Understanding: ILO 2.1 Ability to identify, evaluate, and manage investments in financial markets ILO 2.2 Ability to design coherent financial management strategies in companies or financial intermediaries, applying acquired knowledge in risk management techniques, asset valuation, and derivative handling ILO 3 – Making Judgements: ILO 3.1 Ability to relate models and empirical evidence in the study of companies, intermediaries, and financial markets ILO 4 – Communication Skills: ILO 4 Ability to communicate effectively, both orally and in writing, the specialised content of individual disciplines, using different registers depending on the audience and the communicative and educational purposes, and to assess the educational impact of such communication ILO 5 – Learning Skills: ILO 5.3 Ability to frame a new problem systematically and to generate appropriate taxonomies
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Written exams: mid-term and final
Evaluation Criteria	1/3 midterm & 2/3 final, or, if better: 100% final ILOs 1-5 assessed

Required Readings	Philippe Jorion, Financial Risk Manager Handbook (GARP), 6th Edition, Wiley, 2011. John C. Hull, Risk Management and Financial Institutions, Wiley, 2023.
Supplementary Readings	René Stulz, Risk Management & Derivatives Thomson South-Western, 2002. Selected chapters from CFA Institute Curriculum 2026 edition, Level I –III
Further Information	
Sustainable Development Goals (SDGs)	Climate action, Quality education