Syllabus

Course Description

Course Title	AI and Financial Decision Making (FIN III)
Course Code	25407
Course Title Additional	
Scientific-Disciplinary Sector	ECON-09/A
Language	Italian
Degree Course	Master in Accounting and Finance
Other Degree Courses (Loaned)	
Lecturers	Dott. Carlo Milani, Carlo.Milani@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/45265
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	6
Teaching Hours	36 Online
Lab Hours	-
Individual Study Hours	-
Planned Office Hours	18 Online
Contents Summary	- This course explores the application of artificial intelligence (AI) in financial decision-making processes. - Students learn machine learning techniques, using R software at an intermediate level. - The programme includes predictive models, classification, regression, neural networks, clustering and dimensionality reduction. - Teaching activities combine lectures, tutorials, practical projects and expert talks. - Assessment is based on written examination, presentation of a paper with generative AI support and development of a data

	science project.
Course Topics	Topics covered: · Introduction to general AI concepts · From big data to generative AI · Machine learning models · Data preparation and collection · Classification and regression models · Ensemble learning · Neural networks · Clustering · Dimensionality reduction A detailed program will be provided at the beginning of the course.
Keywords	Artificial intelligence, AI, machine learning, data science, predictive models
Recommended Prerequisites	Intermediate proficiency in R
Propaedeutic Courses	
Teaching Format	A combination of lectures, exercises, projects, and guest speakers.
Mandatory Attendance	The regular attendance of the lectures is strongly recommended
Specific Educational Objectives and Learning Outcomes	ILO (Intended Learning Outcomes) ILO 1 – Knowledge and Understanding: ILO 1.1 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 1.2 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 cost-effectiveness of intermediaries ILO 1.3 of a wide range of investment, financing, and risk management instruments, starting from the fundamentals of portfolio diversification and the classic models for asset pricing and risk measurement ILO 1.4 of specific Finance topics that characterize the profession 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 for the identification, evaluation, and management of investments in financial markets ILO 2.2 for setting coherent financial management strategies in companies or financial intermediaries, competently applying the acquired knowledge in risk management techniques, asset valuation, and derivative handling ILO 3 – Making Judgments: 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 effectively communicate, both orally and in writing, the specialized content of individual disciplines, using different registers depending on the audience and the communicative and educational purposes, and to assess the educational impact of one's communication ILO 5 – Learning Skills: ILO 5.1 ability to develop general models based on the phenomena studied
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	The final grade will be based on a combination of written exam, project works, and active participation in the course (presentations, case study discussions, active participation during guest lectures). ILOs 1-5 assessed
Evaluation Criteria	The assessment consists of four parts: 1) A written exam with multiple-choice questions on theoretical concepts discussed in the course. 2) Presentation and discussion of a paper on artificial intelligence, supported by generative AI. 3) Development of a data science project applied to the banking-financial sector. 4) Active participation during guest lectures (for attending students only).
Required Readings	Articles, business cases, and other materials distributed in class

	and on OLE. Lantz, Brett (2019). “Machine Learning with R: Expert techniques for predictive modeling”, 3rd Edition Packt Publishing
Supplementary Readings	Gosmar, Diego (2020). “Machine Learning: Il sesto chakra dell’intelligenza artificiale”. Additional materials will be announced at the beginning of the course.
Further Information	
Sustainable Development Goals (SDGs)	Industry, innovation and infrastructure