# Syllabus

## *Course Description*

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| **Course Title** | Big Data and Blockchain |
| **Course Code** | 25418 |
| **Course Title Additional** | |
| **Scientific-Disciplinary Sector** | IINF-05/A |
| **Language** | English |
| **Degree Course** | Master in Accounting and Finance |
| **Other Degree Courses (Loaned)** | |
| **Lecturers** | Dr. Paolo Coletti,<br>Paolo.Coletti@unibz.it<br>https://www.unibz.it/en/faculties/economics-management/academic-staff/person/6359 |
| **Teaching Assistant** | |
| **Semester** | Second semester |
| **Course Year/s** | 1 |
| **CP** | 3 |
| **Teaching Hours** | 24 |
| **Lab Hours** | - |
| **Individual Study Hours** | - |
| **Planned Office Hours** | 9 |
| **Contents Summary** | The course focuses on:<br>- basic Python<br>- using an LLM for automatically writing Python programs<br>- major quantitative analysis of financial data<br>- Python representations of data to correct and improve LLM-generated Python scripts<br>- basic cryptocurrencies and blockchain technology |
| **Course Topics** | - basic Python<br>- using an LLM for automatically writing Python programs<br>- major quantitative analysis of financial data |

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| | - Python representations of data to correct and improve LLM-generated Python scripts<br>- basic cryptocurrencies and blockchain technology |
| **Keywords** | Python, financial analysis, LLM code generation, blockchain, cryptocurrencies |
| **Recommended Prerequisites** | |
| **Propaedeutic Courses** | |
| **Teaching Format** | 3-4 hours on cryptocurrencies as a traditional frontal lecture with examples.<br>2 hours on basic Python as an exercise lesson with examples that students must replicate.<br>Rest of the course on generating code with LLM as laboratory course, where each student experiments on her own computer the effects of commands given to the LLM. |
| **Mandatory Attendance** | Regular attendance is suggested, but not required |
| **Specific Educational Objectives and Learning Outcomes** | ILO (Intended Learning Outcomes)<br><br>ILO 1 – Knowledge and Understanding<br>ILO 1.1 Knowledge of economic-financial communication to stakeholders at national and international level.<br>ILO 1.2 Knowledge of business-economic models and performance measurement for planning and management control, including internal and external auditing methods.<br>ILO 1.3 Knowledge of economic-financial planning and evaluation of new investments.<br>ILO 1.4 Knowledge of corporate finance fundamentals for the correct application of decision-making models, data management, and financial risk management in treasury operations<br>ILO 1.5 Knowledge of business-economic models and tools for managing companies, whether family-owned, small-sized, or international<br>ILO 1.6 Knowledge of the design and management of institutional and organizational structures related to corporate governance systems<br>ILO 1.7 Knowledge of business tools and processes developed to recognize, understand, and guide change, and to manage the impact of transitions on organizations<br>ILO 1.8 Knowledge of strategies for efficient communication within |

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| | organizations and toward various stakeholders<br>ILO 1.9 Knowledge of management topics that characterize the professions of financial analyst, portfolio manager, risk manager, and consultant<br>ILO 1.10 Knowledge of basic forecasting models for conducting integrated economic and financial analyses, including econometric methodologies for time series and multivariate analysis<br>ILO 1.11 Knowledge of Big Data analysis techniques to support and integrate corporate decision-making processes<br><br>ILO 2 – Applying Knowledge and Understanding<br>ILO 2.1 Ability to develop and integrate the results of economic-financial communication into corporate decision-making models<br>ILO 2.2 Ability to design and manage corporate restructurings and other extraordinary operations<br>ILO 2.3 Ability to identify, evaluate, and manage investments in financial markets<br>ILO 2.4 Ability to set coherent financial management strategies in companies or financial intermediaries, competently applying knowledge of risk management techniques, asset valuation, and derivatives handling<br>ILO 3 – Making Judgments<br>ILO 3.1 Ability to relate models and empirical evidence in the study of companies, intermediaries, and financial markets<br><br>ILO 4 – Communication Skills<br>ILO 4 Ability to communicate effectively, both orally and in writing, the specialized content of individual disciplines, using different registers depending on the recipients and communicative or educational purposes, and to evaluate the formative effects of communication<br><br>ILO 5 – Learning Skills<br>ILO 5.1 Ability to identify thematic connections and establish relationships between different cases and contexts of analysis<br>ILO 5.2 Ability to develop general models starting from the phenomena studied |
| **Specific Educational Objectives and Learning Outcomes (additional info.)** | |

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| **Assessment** | Acquired knowledge on blockchain and basic cryptocurrencies is evaluated through a written test. Acquired skills on the rest are tested through a practical exam on a real case.<br>ILO assessed 1-5 |
| **Evaluation Criteria** | 15% of the grade comes from the written test. Particular emphasis is done on the explanation skills of the students and the knowledge of the topics.<br>85% of the grade come from the practical test. The outcome of this test depends on the obtained results and, in particular, on the methodology used and the ability of the student to choose the right tools and to check the partial results produced by the computer. |
| **Required Readings** | Videos are provided for each lesson. No further reading is necessary. |
| **Supplementary Readings** | |
| **Further Information** | |
| **Sustainable Development Goals (SDGs)** | Industry, innovation and infrastructure |