Finance track

ECTS credits
8 credits

Semester
Fall

In brief

Course langage: English

Presentation

Prerequisites

The "Models and decision" unit of DDEFi and its own prerequisites

Learning objectives

- Understand the similarities in the concepts of market finance and corporate finance
- Understand how finance products can be used to manage risk
- Know how to organize and manage an investment process
- Know the various risks of banking and how banks are regulated
- Understand the definition, measurement and pricing of financial risks
- Understand the basic approach of data engineering in data science projects

Description of the programme

This course unit consists of three courses: Portfolio management, Applied finance and Financial risk management, of 24 hours each, and is complemented by the second part of the data project (9 hours course and 12 hours project) devoted to data issues.

Portfolio management

1. Introduction to portfolio management
2. Equity Investing and investment process
3. Fixed Income Investing - basics
4. Fixed Income Investing - advanced
5. Alternative asset classes and Performance Measurement

6. Asset management trends
7. Project: Portfolio construction

Applied finance

1. Applied corporate finance – From startup to IPO… and LBO
   i. Introduction / Presentation
   ii. Application areas of
   iii. Accounting Basic Methods
   iv. Valuation methods
   v. We know how to value a company. Now what? Different types of operation
   vi. Introduction to Fintech and start-up ecosystem
2. Applied market finance – Options: Pricing, Hedging & Risk Management
   i. Market finance: players and products
   ii. Future and forward: pricing & hedging
   iii. Options: replication and pricing
   iv. Sensitivity of options: the greeks
   v. Volatility and stress tests

Financial risk management

1. Introduction: bonds and OTC transactions
2. Modelling defaults: structural models and ratings
3. Banking regulation on credit risk; market and counterparty credit risk
4. Overview of the VaR methodologies and pros/cons for each
5. Monte Carlo techniques applied in Finance

Data science projects: data issues

1. Starting a data science project
2. The constraints of data science projects
3. Finding data
4. Acquiring information
5. Playing with data

Generic central skills and knowledge targeted in the discipline

- Know the finance ecosystem. Understand the differences and similarities between Corporate Finance and Financial market.
- Learn what is the asset management industry and what are each player's target
- Understand the portfolio management theory basics – how to build a portfolio
- Know all major asset classes to have a deep financial culture
- Know the various methods to value a company and the process of modelling financial operations (as LBO or venture fundraising).
- Understand the role of options in hedging and risk management and know how they are priced

- Know the regulatory framework of bank and understand how the supervision on market risk; counterparty credit risk and credit risk are organized
- Be able to manipulate data to start data science project

How knowledge is tested

- Written exam (Financial risk management): 30%
- Group project and presentation (Portfolio management): 35%
- Projects (Applied finance): 35%

Bibliography

Portfolio management

- Roland Portait, Patrice Poncet (2014) "Market Finance"
- Franck J. Fabozzi (2012) "The Handbook of Fixed Income Securities"

Applied finance

- Vernimmen, P. (2021). Finance d'entreprise. Dalloz
- Hull, J. (2018). Options, Futures, and Other Derivatives, 10th Edition. Pearson

Financial risk management

- Gourieroux C. and Tiomo, A. (2007) Risque de crédit : une approche avancée, Economica.
- Roncalli (2016). Risk Management & Financial Regulation (http://thierry-roncalli.com)

Data science projects

- Zeng, A and Casari, A. Feature Engineering for Machine Learning. O'Reilly Media.
- Müller, A. and Guido, S. Introduction to Machine Learning with Python. O'Reilly Media.

Teaching team

- Portfolio management: Grégoire Hug (WeeFin)
- Applied finance: Julien Belon (Arx Corporate finance), Vincent Bonnamy (La Banque Postal Asset Management)
- Financial risk management: Reda Rahal (BNP Paribas)
- Data science projects: Maximilien Défourné (Mantiks)

Sustainable Development Goal



Partnerships for the goals



Reduced inequalities



Descent work and economic growth

Total des heures		**100h**
CM	Master class	81h
PJ		19h