Course unit: Finance

Beware! Under construction.

Course metadata

- Title in French: Finance
- Course code: tba
- ECTS credits: 8
- Type: advanced course
- Semester 9 (Fall-Winter)
- Teaching period: Mid-November to Mid-February
- Teaching hours: 100h
- Language of instruction: English
- Coordinator: tba
- Instructor(s): Grégoire Hug (WeeFin), Réda Rahal (BNP Paribas), Julien Belon (Arx Corporate Finance), Vincent Bonnamy (La Banque Postal Asset Management)
- *Last update 24/07/2025 by C. Pouet*

Brief description

This course is taught by highly skilled professionals in finance. Some of them are Centrale Méditerranée alumni.

This course unit is divided into four parts:

- **Portfolio management** (24 hours) taught by Grégoire Hug.
- **Financial risk management** (24 hours) taught by Réda Rahal: this part is dedicated to credit risk and its role in banking regulation.
- **Applied finance** (24 hours) taught by Julien Belon and Vincent Bonnamy: this part is about the theoretical aspects of corporate and market finance applied in real life.
- **Data Project: data sources and preprocessing** (20 hours) taught by tba.

Learning outcomes

- 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
- Cover all major asset classes to have a deep financial culture
- Understand how the supervision financial risks organized
- Know how to model and compute the associated capital charges are computed
- Understand the similarities in the concepts of market and corporate finance
- Understand how finance products can be used to manage risk
- Know how to evaluate and to value a company

Course content

Portfolio management

1. Introduction to portfolio management
    1. The asset management industry
    2. The investment theory basics
    3. Main asset classes
2. Fixed income asset class - basics
    1. Sources of risk and return
    2. Main strategies
    3. Application on a fixed bond
3. Fixed income asset class - advanced
    1. Fixed Income products and associated strategies
    2. Calculation example - fixed bond
    3. Rate curves bootstrapping
    4. Application on a callable bond
4. Back to Equity
    1. Equity Market history and overview
    2. Classic steps in an investment process
    3. Active vs Passive Investment management
    4. Application on an equity European portfolio
5. Alternative asset classes
    1. Currency
    2. Private Equity
    3. Real Estate
    4. Private Debt
    5. Infrastructure
6. Risk and Performance Measurement
    1. Performance Measurement
    2. Risk and Performance Metrics
    3. Risk Measurement
7. Asset allocation
    1. Asset allocation based on investment profile
    2. Capital Protection
8. Innovation in Asset Management
    1. Smart Beta portfolios & passive indexing
    2. Alternative data sources
    3. ESG (intro)
    4. Crypto funds

Financial risk management

1. Introduction: bonds and OTC transactions
2. Modeling 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

Applied finance

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

Data Project: data sources and preprocessing

Tba

Bibliography

You can check the availability of the books below at Centrale Méditerranée library.

1. Portfolio management
    - Portait, R. and Poncet, P. (2014). Market Finance.
    - Fabozzi, F. J. (2012). The Handbook of Fixed Income Securities.
    - Hull, J. (2021). Options, Futures & Other Derivatives. 11th Edition. Pearson.
2. Financial risk management
    - Jorion, P. (2006). Value at Risk: The New Benchmark for Managing Financial Risk, 3rd Edition. McGraw Hill
    - Gregory, J. (2015). The xVA Challenge: Counterparty Credit Risk, Funding, Collateral, and Capital. Wiley.
    - Roncalli T. (2016). Risk Management & Financial Regulation (website)
3. Applied finance
    - Vernimmen, P. (2021). Finance d’entreprise. Dalloz.
    - Hull, J. (2018). Options, Futures, and Other Derivatives, 10th Edition. Pearson