S3FIN463
QUANTITATIVE FINANCE

Number of ECTS credits : 3
Course language : English
Course leader : CHARLES AMELIE
Speakers : KURAL PELVE Hande

COURSE DESCRIPTION

This course is the natural continuation of Financial Markets and Financial management taught in semester 1 and 2.

It allows not only to discover new concepts, but also approaches finance from a mathematical and statisitical angle, showing how most financial products originate from or rely on a quantitative basis.

COURSE OBJECTIVES

Quantitative finance offers a conceptual framework and mathematical tools to understand a complex and changing financial world.

The presentation of these concepts and mathematical tools will thus be illustrated with examples and applications. A practical presentation of the main statistical and mathematical tools in Excel will also be discussed and practiced.

LEARNING OBJECTIVES

C4B learning goal	LG1 - Analysis
C4B learning objective	LO2 - Analyse complex situations
Outcomes	Lev. 0 - NC

C4B learning goal	LG2 - Action
C4B learning objective	LO5 - Evaluate, prevent and manage short, medium and long-term risks
Outcomes	Lev. 0 - NC

C4B learning goal	LG5 - Cooperation
C4B learning objective	LO15 - Act with flexibility, adaptability and intellectual curiosity
Outcomes	Lev. 0 - NC

TACKLED CONCEPTS

Stocks Indices

Concept of return and risk

Risk measurement (systematic risk, idiosyncratic risk, total risk)

Application of risk / return to portfolio managment

Value-at-risk

LEARNING METHODS

5 sessions of 3 hours each

Exercices

Case studies

ASSIGNMENTS

Exercices

BIBLIOGRAPHY

Williams (2010), Introduction à la Finance Quantitative, Vuibert.

Bossu et Henrotte (2008), Finance des marchés : Techniques quantitatives et applications pratiques, Dunod.

Hull (2007), Gestion des risques et institutions financières, Pearson

EVALUATION METHODS

100 % : Examen

SESSIONS

1 Stock Indices
BRIEFING : 03h00

Understand Stock Indices (computation, pricing, adjsutement)

2 Price Adjustments
BRIEFING : 03h00

3 Principle of Return
BRIEFING : 03h00

Definiton, computation, annualization of returns

4 Risk and volatility
BRIEFING : 03h00

Ex post and ex ante risk
Skew
Kutosis
Portfolio Risk and return

5 Value At Risk
BRIEFING : 03h00

Value at Risk