FIN-417
Quantitative risk management
Malamud Semyon

Cursus
Ing. finance

Sem. MA1, MA3
Type Obl.

Language English
Credits 4
Session Winter
Semester Fall
Exam Written
Workload 120h
Weeks 14
Hours 4 weekly
Lecture 2 weekly
Exercises 2 weekly

Number of positions

Remarque
Only in MA3

Summary
This course is an introduction to quantitative risk management that covers standard statistical methods, multivariate risk factor models, non-linear dependence structures (copula models), as well as portfolio allocation and diversification.

Content
• Basics of risk management
• Standard statistical methods
• Multivariate risk factor models
• Modelling dependencies (correlation, copula)
• Dynamic EVT models
• Credit risk models
• Aggregate risk and diversification

Keywords
risk management, copula, diversification, credit risk

Learning Prerequisites

Recommended courses
• Calculus and Linear Algebra (undergraduate level)
• Statistics and Probability (first university course)
• Some knowledge of financial derivatives
• Previous experience with Matlab is very useful

Learning Outcomes
By the end of the course, the student must be able to:
• Use the main statistical tools used to model financial risk
• Conduct important volatility and credit risk models
• Identify and apply appropriate tools to describe and quantify the risk of a portfolio

Transversal skills
• Evaluate one's own performance in the team, receive and respond appropriately to feedback.

Teaching methods
• Lectures
• Homework

Assessment methods
• Homework
• Mid-term Exam
• Final Exam

Resources
Bibliography
• Quantitative Risk Management - McNeil, Frey, Embrechts (primary reference)
• An Introduction to Statistical Modeling of Extreme Values - Coles
• Analysis of Financial Times Series - Tsay
• Statistical Models - Davison

Ressources en bibliothèque
• Quantitative Risk Management / McNeil
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• Statistical Models / Davison