

Announcement SoSe 2025

Lecture in Quantitative Risk Management

Mathematical Methods in Risk Analysis

Prof. Dr. Matthias Scherer

Area: / Modulnr.: CIT5130003

Course Structure: Lecture: 2h Exercises: 1h

Content:

- a) Required tools from probability and statistics
- b) Risk measures: Formal introduction, axiomatic approach, interpretation, examples (VaR, CVaR)
- c) Extreme value theory: The Fisher-Tippett limit law, peaks-over-threshold, statistics
- d) Copulas and dependence measures
- e) Time-series models: Introduction, examples, estimation

Audience: M.Sc. Risk and Safety

Literature:

Carmona, R. (2004): Statistical Analysis of Financial Data in S-Plus, Springer, New York.

Glasserman, P. (2004): Monte Carlo Methods in Financial Engineering, Springer, New York.

McNeil, A.J., Frey, R. and Embrechts, P. (2005): Quantitative Risk Management: Concepts, Techniques and Tools, Princeton University Press.

Mai, J.-F., Scherer, M. (2014): Financial Engineering with Copulas Explained, Palgrave Macmillan.

Certificate: 5 CP

Location/Time: see TUMonline