

# Announcement SoSe 2026

## Lecture in Mathematical Finance

### Quantitative Risk Management

Prof. Dr. Aleksey Min

**Area: / Modulnr.:** Insurance Mathematics / MA5415

**Course Structure:** Lecture: 2h Exercises: 1h

**Content:**

- I) Some statistical tools: Quantile functions, Empirical distribution and quantile function
- II) Risk measures: Axiomatic approach, Examples
- III) Standard methods for market risk: Variance-covariance method, Historical simulation, Monte Carlo method
- IV) Statistical methods in extreme value theory: Extreme value distributions, Domains of attraction, Statistical estimation of extremes
- V) Copulas

**Audience:** MSc Mathematics, Mathematical Finance and Actuarial Science

**Prerequisite:** MA0003 Analysis 3, MA0009 Introduction to Probability and Statistics, MA2409 Probability Theory

**Literature:**

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

**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.

**Mai, J.-F. and Scherer, M. (2012):** Simulating Copulas: Stochastic Models, Sampling Algorithms and Applications, Imperial College Press.

**Föllmer, H and Schied, A. (2016):** Stochastic Finance, De Gruyter.

**Czado, C. and Schmidt, T. (2011):** Mathematische Statistik, Springer.

**Certificate:** Exam, 5 ECTS

**Location and Time:** see TUMonline