Announcement SoSe 2018

John-von-Neumann Lecture: Financial Market Volatility

Prof. Carol Alexander

Area / Modulnr.: Mathematical Finance / MA5719

Course Structure: Lecture: 2h   Exercises: 1h

Content: This course focuses on (i) modelling volatility in the physical and risk-neutral measures, (ii) trading the variance and skew and jump risk premia with swaps and exchange-traded products, and (iii) the use of volatility models for hedging options, hedging with futures and risk assessment. Physical models include moving averages and GARCH models and, in the risk-neutral world, stochastic and local volatility models (and of course, the Black-Scholes model). There is a practical focus on applying models to real financial data on options, equities, commodities and currencies (including Bitcoin).

Audience: MSc Mathematical Finance and Actuarial Science

Prerequisite: Recommended: MA3411 (Time Series Analysis), MA5415 (Quantitative Risk Management), MA3702 (Continuous Time Finance)

Literature: **Carol Alexander (2008):** Market Risk Analysis, Volume 2: Practical Financial Econometrics, Wiley
Carol Alexander (2008): Market Risk Analysis, Volume 3: Pricing, Hedging and Trading Financial Instruments, Wiley
Riccardo Rebonato (2004): Volatility and Correlation: The Perfect Hedger and the Fox, 2nd Edition
Jim Gatheral (2006): The Volatility Surface: A Practitioner's Guide by Jim Gatheral, Wiley

Certificate: Written Exam, 5 CP

Location and Time: see TUMonline