Financial Econometrics

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The purpose of this course is to provide students with a firm understanding of the econometric methods used in the most recent development in the literature on financial econometrics.

The course will touch upon the following relevant topics in econometrics: generalized method of moments, simulated method of moments, indirect inference, maximum likelihood, nonparametric methods, cross-sectional, time series and panel methods; cointegration, extensions of autoregressive conditional heteroskedasticity (ARCH) and GARCH (generalized ARCH); diffusion models; implied, realized and stochastic volatility, forecasting, filtering; arbitrage and equilibrium models, dynamic programming, numerical optimization, finite difference methods, Monte Carlo methods; bootstrap; time-varying parameter models; score driven models; modelling of time-varying risk-premia; high frequency data methods.

After participating in the course, the PhD candidates should be able to apply the econometric techniques covered in the course to financial data and to acquire, reflect upon and use recently developed techniques within the realm of financial econometrics.

The following topics will constitute the

1. Theoretical foundation of high frequency financial econometrics
2. Parametric and non-parametric volatility modeling
3. Modeling realized variance
4. The role of measurement error in volatility modeling
5. Parametric and non-parametric analysis of jumps
6. Staleness
7. Multivariate volatility modeling

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