



The University of Chicago
Department of Statistics
Mini-Seminar for First Year Students

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**“A Tale of Two Time Scales: Determining Integrated
Volatility with Noisy High-Frequency Data”**

**TUESDAY May 24, 2005 at 5:45
110 Eckhart Hall, 5734 S. University Avenue**

ABSTRACT

It is common practice in finance to estimate volatility from the sum of frequently-sampled squared returns. However, market microstructure poses challenges to this estimation approach, as evidenced by recent empirical studies in finance. I will talk briefly about the present work on how to lay out theoretical grounds that reconcile continuous-time modeling and discrete-time samples. I will mention why and where the ‘usual’ volatility estimator fails when the returns are sampled at the highest frequencies. If the noise is asymptotically small, recent work provides a way of finding the optimal sampling frequency. A better approach, the ‘two scales estimator’, works for any size of the noise.