Syllabus

Course Objective:
This course covers basic statistics and time series and their applications to financial data, with focus on the topics: empirical analysis of asset prices: heavy tails, test of the predictability of stock returns; financial time series: ARMA, stochastic volatility, and GARCH models; and regression models: linear regression and test of CAPM, nonlinear regression and fitting of term structures.

Prerequisites:
Probability and statistics at the level of IEOR E4150, and stochastic processes at the level IEOR E4106

Recommended Books:

Outline
- Estimation
- Hypothesis Testing
- Bayesian Statistics
- Black-Litterman Model
- Regression Analysis
- Principal Component Analysis
- Linear Time Series
- Volatility Models
- High Frequency Data

Evaluation:
- Homework assignments: 20%
- Final exam: 50%
- Midterm exam: 30%

Office:
312 Mudd Bldg; Appointment by e-mail: tl2497@columbia.edu.