**Instructor:** Dr. Sheung Yin Kevin Mo, [sym2k@virginia.edu](mailto:sym2k@virginia.edu)

**Topics:**This course investigates methods implemented in multiple quantitative trading strategies with emphasis on automated trading and quantitative finance based approaches to enhance the trade-decision making mechanism. The course provides a comprehensive view of the algorithmic trading paradigm and some of the key quantitative finance foundations of these trading strategies. Topics explore markets, financial modeling and its pitfalls, factor model based strategies, portfolio optimization strategies, and order execution strategies. The data mining and machine learning based trading strategies are also introduced, and these strategies include, but not limited to, weak classifier method, boosting, neural network and genetic programming algorithmic emerging methods.

**Lecture Outline:**

day 1 - Intro and common pitfalls in fin models

day 2 - Factor models and Factor based strategies

day 3 - Optimization, Transaction Costs and Optimal Strategies

day 4 - Pattern Recognition Models

day 5 - Machine Learning in Finance