

Course: Data Science in Algorithmic Trading Strategies

1. General Description:

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.

2. Course Duration and Dates

The course will be presented during one week from May 3 to May 7, 2021 in an online course via the Stellenbosch University SUNOnline platform.

3. Course Topics and Schedule

Day	Topic(s)
1	Intro and common pitfalls in fin models
2	Factor models and Factor based strategies
3	Optimization, Transaction Costs and Optimal Strategies
4	Pattern Recognition Models
5	Machine Learning in Finance

4. Structure of Lectures

The course lectures will be a combination of pre-recorded lectures (provided at 8am and to be completed by 2:30pm) and daily interactive live session from 3pm-6pm. There will be a discussion forum that participants may post questions at any time during the day. Lecture slides will be supplied and there will be reading references and recommendations provided prior to the daily interactive live session.

5. Lecturers involved:

Dr Sheung Yin Kevin Mo

Contact Info: sym2k@virginia.edu