Course Pre-requisites: FRE-GY 6083

Course Description:
This course provides a broad overview to the current state of the art in the area of cryptocurrencies, and discusses quantitative trading models based on stochastic calculus, and machine learning techniques.

Course Objectives:
By the end of this course, the students should be able to trade cryptocurrencies.

Course Structure:
• The instructor will deliver weekly lectures, and leave time each week for a Q&A session and a discussion.
• A quiz will be held on the fourth class.
• The last class will be dedicated to the project presentations by the students.

Readings:
• The instructor will provide a set of notes.
• There is no mandatory textbook

Additional references:

• The bitcoin magazine https://bitcoinmagazine.com/
• A method for shorting bitcoins

• Crypto Currency data https://bitcoincharts.com  
  https://coinmarketcap.com  
• Futures data https://quandl.com

Course requirements:
• One quiz at the beginning of the fourth lecture, 30% of final grade
• Project, due at the end of the course, 70% of final grade
  The projects will be handed out on the third class and will be due on week 7. There will be an oral defense on week 7.
• The students will need to write codes in Python to implement trading strategies

Course Content
• Week 1: The blockchain technology.
• Week 2: Crypto currency market microstructure and asset price models for cryptocurrencies.
• Week 3: Crypto currency derivatives, regulations.
• Week 4: Investing and trading cryptocurrencies.
• Week 5: Markov Decision models for trading crypto currencies, example of cointegration.
• Week 6: Machine learning techniques for trading crypto currencies
• Week 7: Oral presentation of the projects.