QUANTITATIVE FINANCE CERTIFICATE

Program Description

In today's evolving financial landscape, quantitative methods have become essential for analyzing complex financial data, modeling risk and reward, and optimizing investment strategies.

In this certificate program, you will gain a comprehensive understanding of quantitative finance principles and techniques using the Julia programming language, a valuable tool for quantitative finance professionals and researchers. Throughout the program, you will explore topics such as modeling and analysis of standard investment instruments (e.g., fixed income, equity, and derivatives), portfolio optimization, risk management, and computational finance decision making through practical, hands-on learning. By the end of the program, you will have the opportunity to apply your skills to build your own trading bot. Whether you're a seasoned finance professional looking to improve your quantitative skills or an engineer delving into finance, this program will give you a strong foundation in using Julia to apply computational methods and model financial outcomes.

This certificate program requires students to have an understanding of high school-level calculus; basic understanding of data analytics, modeling, and simulation; and be comfortable with typical programming idioms in common languages like MATLAB or Python.

The courses in this certificate program are required to be completed in the order that they appear.

Key Takeaways

- Compute allocations for a portfolio of equities
- Compute the profit and breakeven for European options contracts
- Simulate the options chain for American call and put options
- Compute the probability of profit for a single or composite options contract
- Use dynamic delta hedging to compensate for share price fluctuations
- Construct low and high correlation portfolios of risky assets
- Evaluate the performance of single index models
- Model U.S. Treasury coupon notes and bonds
- Build a trading bot

What You'll Earn

- Quantitative Finance Certificate from Cornell's College of Engineering
- 96 Professional Development Hours (9.6 CEUs)

Who Should Enroll

- Quantitative analysts
- Finance professionals looking to upskill in data modeling
- Engineers looking to transition into finance
- Research scientists
- Computer scientists
- Personal investors

How To Enroll

For more information on how to enroll, please visit Quantitative Finance Certificate (https://ecornell.cornell.edu/certificates/engineering/quantitative-finance/).

Courses

Code	Title	Hours
eCornell CHEME130	Quantitative Modeling of Fixed Income Debt Securities	0
eCornell CHEME131	Equity Asset Pricing Using Stochastic Models	0
eCornell CHEME134	Analysis of Equity Derivatives at Expiration	0
eCornell CHEME133	Analysis of Equity Derivatives Before Expiration	0
eCornell CHEME135	Optimizing Portfolio Allocation	0
eCornell CHEME132	Financial Decision Modeling	0