



Byte Academy

Quant-Algo Syllabus

Introduction

Byte Academy **pioneered industry-focused programs** beginning with the launch of our FinTech course, the first of its type. Our educational programs bridge the gap between “business” and technology. Offerings include Python Fullstack Software Development, Data Science, FinTech, Quant-Algos, Product Management and Blockchain.

We work with companies to develop and adapt our curriculum to teach skill-sets that match real hiring needs. We also utilize the expertise of leading business executives, industry professionals, and those passionate about education and software development to craft each course. Many of these individuals teach at Byte.

Our courses are open to individuals spanning from beginner to more advanced programming backgrounds. Some may have already had industry expertise or work experience while others are brand new to the domain that they want to study. We provide **scholarships to women** and offer a **tuition deferral program** in which eligible students pay us back after they get a job.

Course formats include onsite **full-time, part-time and remote** in addition to customized corporate training.

For more information please see www.byteacademy.co



Quant – Algo

Part-Time

Our course is created in partnership with a leading statistics – arb hedge fund.

We'll help you understand core statistical concepts and develop the tools to apply to data analysis and model time series for any industry.

Classes will emphasize model creation and validation along with theoretical skills and statistical modeling inference.

Model Fit Analysis

- The Dangers of Overfitting
- Instability of Estimates
- Model Misspecification
- Violations of Regression Models
- Regression Model Instability
- Universe Selection

Analysing Risk

- Beta Hedging
- Beta Hedging Algorithms
- Leverage
- Position Concentration Risk
- VaR and CVaR

Factor Models

- Arbitrage Pricing Theory
- Fundamental Factor Models
- Factor Risk Exposure
- Ranking Universes by Factors

Application to Other Fields

- Analysing other Data
- Forecasting Marketing Trends
- Data Science Concepts

Advanced Python Primer

- Introduction to NumPy
- Introduction to pandas
- Plotting Data -- Pyplot

Intro to Stat Concepts

- Means
- Variance
- Linear Regression
- Multiple Linear Regression
- Linear Correlation Analysis
- Spearman Rank Correlation

Sample Trading Algorithms

- Example: Long-Short Cross-Sectional Momentum
- Introduction to Pairs Trading
- Example: Basic Pairs Trading Algorithm
- Long-Short Equity
- Sample: Long Short Equity Algorithm

Intro to Time Series (Forming a Forecasting Model)

- Random Variables
- Statistical Moments
- Confidence Intervals
- Integration, Cointegration, Stationarity
- Hypothesis Testing
- P-Hacking and Multiple Comparisons
- Maximum Likelihood Estimation
- Autocorrelation and AR Models

More information?

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