



**HKUSPACE**

香港大學專業進修學院  
HKU School of Professional and Continuing Education

# Postgraduate Diploma in Financial Analytics and Algo Trading

金融分析與程式交易深造文憑

**FN092A**

Inspiring Your Future

Business Education @ **HKUSPACE**



## About the Programme

Financial analytics use computational algorithms and analytical techniques to analyse financial data, construct financial scenarios and facilitate optimal financial decision-making. Financial data is very important that accounting and financial professionals use various ways to collect the data from their company's customer base, competitors' financial reports and/or different markets or even data scraping from webpages. They can use computational tools to visualise the data and to present relevant information using charts and graphs to understand the market situation from financial perspectives. Accountants and finance managers are also required to perform ad hoc analyses for potential projects and investment assets, to forecast possible future financial scenarios as well as to apply financial analytics to facilitate their analyses to support financial decision-making. In quantitative investing, analysts build financial models, which involve the applications of cutting-edge technologies like Artificial Intelligence (AI) and Machine Learning (ML), evaluate their investment strategies, and optimise investment portfolios by applying methodologies of financial analytics. With the help of algorithmic trading (algo trading) programs, investors can be more systematic in collecting, visualizing, presenting, interpreting and analysing massive financial data and more discipline in implementing their investment strategies and executing their desired trades automatically. Besides, those programs help investors to avoid emotional biases and cognitive errors in investment, expand their investment universe, tackle changes in the economic situations and financial markets swiftly, gauge the trading opportunities accurately, as well as predict the potential return and diversified their investment portfolio.

## Objective

This programme aims to impart interdisciplinary knowledge of quantitative finance and machine intelligence to students who are interested in financial analytics and algo trading. It examines contemporary elements in Environmental, Social and Governance (ESG) investing, financial risks and investment portfolios. It also discusses the applications of computational tools to analyse quantitative data and qualitative data, build financial models, perform financial analysis and text analytics to assist investment decision-making. The programme illustrates the applications of artificial intelligence (AI) and machine learning to perform financial analytics as well as the usage of algo trading in implementing quantitative investment strategies.



## Who should apply

Quantitative analysts, investment strategists, investment analysts, performance analysts, portfolio managers, chief investment officers and manager of managers in finance and investment sectors, data scientists, system developers, programmers, project managers and executives in finance and FinTech fields, investment professionals and financial executives who want to refresh their knowledge and acquire the latest applications of financial analytics and AI are welcome to apply for the programmes. For graduates of HKU SPACE Postgraduate Diploma (e.g., Postgraduate Diploma in Investment Management and Financial Intelligence, Postgraduate Diploma in Applied Financial Engineering, and Postgraduate Diploma in Finance and Data Analytics, and Postgraduate Diploma in FinTech and Legal Regulations) within 5 years upon their graduation, they will have exempted module.

## Programme Structure

Students pursuing this programme must complete 60 credits comprising 6 modules.

Module	Course title
1	AI and Financial Computing
2	Financial Analysis and ESG Investing
3	Financial Risk Analysis and Portfolio Optimisation
4	Machine Learning for Financial Analytics
5	Web Scraping and Text Analytics in Quantitative Finance
6	Algo Trading and Quantitative Investment Strategies



### MODULE 1 - AI and Financial Computing

The module aims to provide students with fundamental knowledge of Artificial Intelligence (AI), mathematical and computational techniques in finance. It covers essential techniques in Python programming and data wrangling of financial data. The module also discusses the practical applications of AI in finance and computational methods in solving finance and investment problems.

### MODULE 2 - Financial Analysis and ESG Investing

The module aims to provide students with essential concepts in financial analysis, contemporary knowledge about ESG Investing and facilitate them to build up an integrated approach for analysis. It covers methods for evaluating the financial performance, core ESG factors and related analytical processes. The module also discusses computational tools for financial analysis, ESG-driven markets, financial analysis and portfolio measurement related to ESG factors.

### MODULE 3 - Financial Risk Analysis and Portfolio Optimisation

The module aims to provide students with fundamental knowledge of financial risks and portfolio optimisation. It covers the quantitative measurement of interest rate risk, market risk and credit risk as well as managerial issues to minimise financial risks. It also discusses the application of computational tools for risk modelling, simulation and portfolio optimization.

### MODULE 4 - Machine Learning for Financial Analytics

The module aims to provide students with contemporary knowledge of machine learning (ML) and financial analytics as well as their latest developments and applications in finance and investment. It covers computational tools to perform financial analytics as well as implement learning algorithms and build financial models. This module also discusses the practical applications of machine learning in finance.

### MODULE 5 - Web Scraping and Text Analytics in Quantitative Finance

The module aims to provide students with the essential knowledge of text analytics and practical skill in web scraping as well as discuss practical applications in quantitative finance. It covers data wrangling, text mining, natural language processing and sentiment analysis. It also illustrates the usage of computational tools to collect, transform, visualise and analyse data as well as solve finance and investment problems.

### MODULE 6 - Algo Trading and Quantitative Investment Strategies

This module aims to provide students with the essential knowledge of technical analysis and algorithmic trading (algo trading). It covers behavioural finance, quantitative trading strategies and performance evaluation. The module discusses the usage of computational tools to build and back-test trading algorithms as well as implement automated trading strategies. It also covers contemporary trading methodologies powered by machine intelligence and quantitative investment strategies. The group project in this module will serve as a capstone project to facilitate students to integrate knowledge and skills learnt from the previously taught modules.

## Admission

There are several intakes per year. Please visit the programme webpage for the detail information.

## Mode of Delivery

The programme will be taught in part-time face-to-face teaching mode. 33 to 42 contact hours (lectures and/or practical classes in the computer laboratory) will be provided for each module. Classes are held on weekday evenings and/or weekends at HKU SPACE Campus. The language of instruction for all modules will be English. (\*For your safety and health, please note that the School may substitute face-to-face classes with online teaching if necessary.)



## Assessment Methods

Each module will be assessed by a mix of coursework, group presentation and written reports.

## Programme Fee

The total programme fee is \$66,000 (course fee equivalent to \$11,000 per module) and the payment is by instalment (first three modules - \$33,000, second three modules - \$33,000). (\*\$150 non-refundable for the application fee; course fees are subject to change without prior notice)

## Application

Applicants can apply online or fill out the enclosed application form and take it in person to one of the locations below. Applicants should include a non-refundable application fee of HK\$150 to cover the cost of processing (Cheques should be crossed out and made payable to “HKU SPACE”). Please also bring the original and photostat copies of your ID Card and relevant certificate and transcripts.

## Entry Requirements

Applicants shall hold a bachelor’s degree in quantitative or computational areas (e.g., economics, finance, mathematics, statistics, science, computer science, IT, engineering) awarded by a recognized institution or equivalent.

If the degree or equivalent qualification is from an institution where the language of teaching and assessment is not English, applicants shall provide evidence of English proficiency, such as:

- i. an overall band of 6.0 or above with no subtests lower than 5.5 in the IELTS; or
- ii. a score of 550 or above in the paper-based TOEFL, or a score of 213 or above in the computer-based TOEFL, or a score of 80 or above in the internet-based TOEFL; or
- iii. HKALE Use of English at Grade E or above; or
- iv. HKDSE Examination English Language at Level 3 or above; or
- v. equivalent qualifications.

Applicants without the above qualifications but have substantial relevant work experience will be considered on individual merit.

Applicants who do not have a background in quantitative or computational areas are required to take the Certificate for Module (Quantitative Methods in Finance) as the bridging course. They must complete and pass the module before the commencement of the programme.



## QF level

Level 6

QR registration No.: 22/000999/L6

Validity Period: 01 Dec 2022 - on-going

## QR Code



## Enquiries

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