

Module code: MOD010297	Version: 3 Date Amended: 01/Sep/2025
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1. Module Title
Financial Data Analysis Using Python

2a. Module Leader
Minh Nguyen

2b. School
School of Economics, Finance and Law

2c. Faculty
Faculty of Business and Law

3a. Level
7

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	MBA Fintech and Data Analytics MBA Fintech and Data Analytics (with Professional Experience) MSc Innovative and Sustainable Finance MSc Innovative and Sustainable Finance (with Professional Experience) MSc International Business with Business analytics MSc International Business with Business analytics (with Professional Experience) MSc Finance and Financial Technologies MSc Finance and Financial Technologies (with Professional Experience)		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description
The module introduces you to programming using 'Python for finance'. No prior knowledge or coding experience in Python is assumed. Python has emerged as an industry- standard language and is extensively used to develop innovative financial products and services. This course covers foundational programming concepts such as conditional statements and loops, data processing from files, receiving input, and displaying relevant output. At the end of the module, you should be proficient in writing basic Python functions, manipulate data files - including reading, modifying, and writing to external files - and performing tasks such as reading and writing to Excel and CSV, connecting to databases, retrieving and processing web data, and employing Python for Finance applications. These applications include developing event-based trading strategies and back testing and optimising them using historical data.

6b. Outline Content

Part 1: Mastering the basics in Python

Introduction of Programming in Finance

- Variables, Operators, Loops
- Conditional statements, Important Python methods
- Functions
- Working with files.

Part 2: Data management and visualisation

Pandas: Basic analytics, Groupby, Merging/Combining datasets

- Financial Data, Connect to online databases.
- Data visualisation- Matplotlib

Part 3: Python applications in Finance

Trading strategies: Simple Momentum Strategy, Backtesting and Calibrate parameters

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Python

7. Learning Outcomes (threshold standards)		
No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Grasp fundamental Python programming concepts tailored for finance, facilitating the manipulation and analysis of financial data.
2	Knowledge and Understanding	Gain proficiency in using Python libraries such as Pandas and Matplotlib for managing and visualising financial data, enabling informed decision-making in Finance.
3	Intellectual, practical, affective and transferrable skills	Develop a comprehensive understanding of programming fundamentals in Python, including variables, operators, loops, conditional statements, functions, and file handling, enabling students to apply these concepts effectively in Finance-related programming tasks.
4	Intellectual, practical, affective and transferrable skills	Enhance their data management and visualisation skills using Python libraries such as Pandas and Matplotlib, allowing students to analyse financial data, perform basic analytics, and create visualisations for effective communication and decision-making in Finance.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	0	None	None
Other teacher managed learning	26	1-4	1 hour Tutor-led Workshop (1hr x 11 weeks) 1 hour Student-led Workshop (1hr x 12 weeks) Screencast or equivalent (20 minute maximum) x 10 weeks minimum
Student managed learning	124	1-4	Learning activities provided and explained on Canvas.
TOTAL:	150		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-4	100 (%)	Fine Grade	40 (%)

Assignment 2500 words

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:

- (a) achieve the qualifying mark for each element of fine graded assessment as specified above**
- (b) pass any pass/fail elements**

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]