AFIN2070

Financial Data Analytics

Session 2, In person-scheduled-weekday, North Ryde 2026

Department of Applied Finance

Contents

General Information

Unit convenor and teaching staff
Convenor and Lecturer
Hieu Nguyen
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Contact via Contact via Email
Room 536, 4ER Building, 4 Eastern Road
Tuesday 4:00 PM - 5:00 PM (by appointment)

Credit points
10

Prerequisites
AFIN1002 and (STAT1250 or STAT1170 or STAT1371)

Corequisites

Co-badged status

Unit description
This unit introduces students to the fundamental process of data analytics in finance. It focuses on developing critical computational, statistical, and other contemporary analytical skills that are essential for people conducting data-driven financial analytics. With an emphasis on applied learning informed by a strong theoretical foundation, the lectures use real-data examples to discuss contemporary topics such as data management and visualisation, financial risk analysis and prediction, regression and classification methods, and clustering. Students will practice their learned concepts and analytical skills through applied data-driven case studies using computer software tools and industry-standard financial databases.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Critically examine core predictive and classification methods in financial data analytics

ULO2: Evaluate and apply data analytics skills using computer software tools to solve

real-world problems in the finance industry.

ULO3: Apply working knowledge of data analytics to extract and report insights from financial data in various forms.

General Assessment Information

Late Submission Penalties

If you submit your assessment late, 5% of the total possible marks will be deducted for each day (including weekends), up to 7 days. Submissions more than 7 days late will receive a mark of 0.

Example 1 (out of 100):

If you score 85/100 but submit **20 hours late**, you will lose **5 marks** and receive **80/100**.

Example 2 (out of 30):

If you score 27/30 but submit **20 hours late**, you will lose **1.5 marks** and receive **25.5/30**.

Extensions

Automatic short extension: Some assessments are eligible for automatic short extension. You can only apply for an automatic short extension before the due date.

Special Consideration: If you need more time due to serious issues and for any assessments that are not eligible for Short Extension, you must apply for Special Consideration. Need help? Review the Special Consideration page for further details.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Professional practice: Industry database training	20%	No	30/08/2026	Individual	Yes	Open
Professional Practice: Applied data analysis	40%	No	18/10/2026	Individual	Yes	Open
Formal examination	40%	No	Exam Period	Individual	No	Observed

Professional practice: Industry database training

Assessment Type [1]: Professional task
Indicative Time on Task [2]: 20 hours
Due: **30/08/2026**
Weighting: **20%**
Groupwork/Individual: Individual
Short extension [3]: Yes
AI Approach: Open

The purpose of this assessment is to enable you to develop expertise in utilizing industry databases. You will complete a training module provided by a financial database provider.

Skills in focus:

- Critical thinking and problem solving
- Digital skills
- Work readiness
- Discipline knowledge

Deliverable(s): Complete the training module's online quiz and submit evidence of completion and quiz score

Individual assessment

On successful completion you will be able to:

- Critically examine core predictive and classification methods in financial data analytics
- Evaluate and apply data analytics skills using computer software tools to solve real-world problems in the finance industry.

Professional Practice: Applied data analysis

Assessment Type [1]: Professional task
Indicative Time on Task [2]: 15 hours
Due: **18/10/2026**
Weighting: **40%**
Groupwork/Individual: Individual
Short extension [3]: Yes
AI Approach: Open

The purpose of this assessment is for you to practice in-depth financial data analysis.

You will conduct financial data analytics tasks and provide insights based on the information obtained.

Skills in focus:

- Critical thinking and problem solving
- Communication skills
- Digital skills
- Work readiness
- Discipline knowledge

Deliverable(s): Python code and written report submission [max 2,500 words]

Individual assessment

On successful completion you will be able to:

- Critically examine core predictive and classification methods in financial data analytics
- Evaluate and apply data analytics skills using computer software tools to solve real-world problems in the finance industry.
- Apply working knowledge of data analytics to extract and report insights from financial data in various forms.

Formal examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 35 hours
Due: **Exam Period**
Weighting: **40%**
Groupwork/Individual: Individual
Short extension [3]: No
AI Approach: Observed

The purpose of this assessment is for you to demonstrate the expertise you have gained in this unit. You will participate in a 2-hour exam held during the University Examination period. Important information about the exam will be made available on the unit iLearn page. You should also review the MQ Exams website for general tips. **Deliverable(s):** Formal exam Individual assessment

On successful completion you will be able to:

- Critically examine core predictive and classification methods in financial data analytics
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- Apply working knowledge of data analytics to extract and report insights from financial data in various forms.

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- Academic Success for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation.

[3] An automatic short extension is available for some assessments. Apply through the Service Connect Portal.

Delivery and Resources

Mode of delivery: face-to-face on campus.

Class structure:

- 1.5 hours of lecture and 1.5 hours of tutorial per week.
- Lectures are from Week 1 to 13, tutorials are from Week 2 to 13.

Recommended readings:

- McKinney, W. (2022). *Python for Data Analysis : Data Wrangling With Pandas, NumPy, and Jupyter* (Third edition). O'Reilly.
- Nussbaumer Knaflic, C. (2015). *Storytelling with Data: A Data Visualization Guide for Business Professionals* (1st edition). Wiley.
- Rachev, S. T., Hoechstoetter, M., Fabozzi, F. J., & Focardi, S. M. (2010). Probability and Statistics for Finance. Wiley.
- Wooldridge, Jeffrey M et al (2022) *Introductory Econometrics* (2nd Asia-Pacific edition). Cengage Learning Australia.
- Müller, A. C., & Guido, S. (2016). *Introduction to Machine Learning with Python : A Guide for Data Scientists* (1st edition). O'Reilly.
- Kronthaler, F. (2022). Statistics Applied with Excel: Data Analysis Is (Not) an Art (1st ed.). Springer Berlin.

Technology and equipment: Computer, Microsoft Excel, Python, Factset account (detailed instructions are provided in iLearn).

Unit Schedule

Week	Topic
1	Introduction: financial data analytics process and the analytical software
2	Financial data types and datasets
3	Data cleaning and manipulation
4	Visualise and summarise financial data
5	Statistical distributions and downside risk modelling
6	Relationship between variables & portfolio analysis
7	Regression analysis 1
8	Regression analysis 2

9	Time series analysis 1
10	Time series analysis 2
11	Machine learning 1
12	Machine learning 2
13	Revision

This schedule is subject to minor adjustments when needed

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Academic Success

Academic Success provides resources to develop your English language proficiency, academic writing, and communication skills.

- Ask a Study Coach
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the Service Connect Portal, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit https://students.mq.edu.au/support/technology/service-desk.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Unit information based on version 2026.05 of the Handbook