AFIN8015
Financial Data Science
Session 1, In person-scheduled-intensive, North Ryde 2024
Department of Applied Finance

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General Information

Unit convenor and teaching staff
Guy Schofield
guy.schofield@mq.edu.au

Credit points
10

Prerequisites
(Admission to MActPrac) or (Admission to MBkgFin or MCom and (AFIN8018 or ACST6003)) or ACCG6003

Corequisites

Co-badged status

Unit description
This unit introduces the fundamental process of data science for finance to students with an interest in the rapidly growing area of FinTech. The unit focuses on developing critical computational, statistical, and other contemporary analytical skills that are essential for people conducting the data-driven financial analytics in the FinTech area. Students will practice their learned concepts and analytical skills through applied data-driven case studies in selected data intensive domains in finance such as financial data management and visualisation, financial risk analysis and prediction, consumer analytics, trading etc.

Financial Data Science is a course with an emphasis on applied learning informed by strong theoretical foundation. The lectures combine discussion on contemporary methods in data science such as Regression and Classification methods, Data Management and Visualisation methods, clustering, Machine Learning methods etc., with worked examples using real data. Students will use computer terminals with access to Excel and programming tools such as SQL, R, Python etc, 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 science.
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 advanced methods in financial data science to extract and report insights from financial data in various forms.

General Assessment Information

Late submissions of assessments

Unless a Special Consideration request has been submitted and approved, no extensions will be granted. There will be a deduction of 10% of the total available assessment-task marks made from the total awarded mark for each 24-hour period or part thereof that the submission is late. Late submissions will only be accepted up to 96 hours after the due date and time.

No late submissions will be accepted for timed assessments – e.g., quizzes, online tests.

For any late submissions of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for Special Consideration.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Data Analysis 1</td>
<td>45%</td>
<td>No</td>
<td>Week 6</td>
</tr>
<tr>
<td>Financial Data Analysis 2</td>
<td>55%</td>
<td>No</td>
<td>Week 11</td>
</tr>
</tbody>
</table>

Financial Data Analysis 1

Assessment Type 1: Project
Indicative Time on Task 2: 30 hours
Due: Week 6
Weighting: 45%

Students will be required to analyse real world financial data sets using relevant descriptive statistics and visualisation techniques.

On successful completion you will be able to:

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

Financial Data Analysis 2

Assessment Type 1: Project
Indicative Time on Task 2: 40 hours
Students will conduct quantitative and qualitative analysis using data science tools and techniques and present the findings.

On successful completion you will be able to:

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

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
• the Writing Centre 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

Delivery and Resources

<table>
<thead>
<tr>
<th>Required Text</th>
<th>The unit will utilise various library resources, including research papers, book chapters, case studies etc., and relevant material will be made available on iLearn.</th>
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<tbody>
<tr>
<td>Unit Web Page</td>
<td>Log in via https: iLearn</td>
</tr>
<tr>
<td>Technology Used and Required</td>
<td>Necessary technology: Computer with R and RStudio software, Excel, internet access. Useful technology: The unit will utilise the R software but the MATLAB and Python software environment are also very useful if you intend doing this sort of work professionally.</td>
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| Delivery Format and Other Details | Teaching and Learning Activities
The teaching in the unit will be interactive case study style delivery where financial data science classification and predictive methods will be discussed along with hands on examples using R.
You are strongly advised to attempt all examples before the weekly lectures, and before consulting the solutions.
You are encouraged to submit your workings of the class examples for further feedback. |
Recommended Readings:

We will supplement the lecture materials with readings from journals and other textbooks. A list of relevant material will be provided on iLearn site.

Following are some of the recommended readings:


Unit Schedule

Please refer to iLearn.

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).
Student Support

Macquarie University offers a range of Student Support Services including:

- IT Support

Student Services and Support

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

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- 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

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 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 ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

du.au) and use the search tool.
Student Enquiries
Got a question? Ask us via AskMQ, or contact Service Connect.

IT Help
For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

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 2024.03 of the Handbook