BUSA3015
Business Forecasting
Session 1, In person-scheduled-weekday, North Ryde 2024

Department of Actuarial Studies and Business Analytics

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General Information

Unit convenor and teaching staff
Dr. Farida Akhtar
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Administrator
Deanna Tracy
deanna.tracy@mq.edu.au

Credit points
10

Prerequisites
130 cp at 1000 level or above including STAT1250 or STAT1170 or STAT1371 or MQBS1030 or MGMT2016

Corequisites

Co-badged status

Unit description
This unit explores business forecasting by considering the planning process of the organisation, the environment in which business forecasts are made, prediction of key variables using qualitative and quantitative information, and the practical considerations of forecast implementation. Quantitative predictions will generally make use of spreadsheets and simple statistical procedures that can be easily applied in the business environment.

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: Identify and explain the need for, and uses of, forecasting in a business context.
ULO2: Select and apply quantitative and qualitative forecasting techniques for use in business.
ULO3: Demonstrate practical knowledge of spreadsheets and statistical software to produce business forecasts.
ULO4: Critically examine business contexts and transform relevant data to provide
recommendations for stakeholders.

**General Assessment Information**

**Late Assessment Submission Penalty (written assessments)**

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of ‘0’ will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical concern.

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>
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</thead>
<tbody>
<tr>
<td>Online quizzes</td>
<td>10%</td>
<td>No</td>
<td>week 7 and week 10</td>
</tr>
<tr>
<td>Critical Thinking - Applying forecasting to problems - Two Reports</td>
<td>40%</td>
<td>No</td>
<td>week 8 and week 12</td>
</tr>
<tr>
<td>Final Exam</td>
<td>50%</td>
<td>No</td>
<td>TBC</td>
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</table>

**Online quizzes**

Assessment Type: Quiz/Test
Indicative Time on Task: 10 hours
Due: **week 7 and week 10**
Weighting: **10%**

There will be two online quizzes that involve a range of multiple choice and/or short answer style questions. You will be making calculations and recommendations.

On successful completion you will be able to:
- Identify and explain the need for, and uses of, forecasting in a business context.
- Select and apply quantitative and qualitative forecasting techniques for use in business.
- Demonstrate practical knowledge of spreadsheets and statistical software to produce business forecasts.
Critical Thinking - Applying forecasting to problems - Two Reports

Assessment Type 1: Case study/analysis
Indicative Time on Task 2: 30 hours
Due: **week 8 and week 12**
Weighting: **40%**

Students will submit two reports, of between 500-750 words each, as well as numerical answers submitted through iLearn, addressing the presented problem/s and/or issues. Your ability to think critically will be assessed.

On successful completion you will be able to:
• Select and apply quantitative and qualitative forecasting techniques for use in business.
• Critically examine business contexts and transform relevant data to provide recommendations for stakeholders.

Final Exam

Assessment Type 1: Examination
Indicative Time on Task 2: 20 hours
Due: **TBC**
Weighting: **50%**

An exam of 2 hours duration (plus 10 minutes reading time) will be undertaken during the University Examination period.

On successful completion you will be able to:
• Select and apply quantitative and qualitative forecasting techniques for use in business.
• Critically examine business contexts and transform relevant data to provide recommendations for stakeholders.

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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
• the Writing Centre for academic skills support.
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

Classes:
3 hours of teaching per week consisting of:
* 1 x 2 hour lecture and
* 1 x 1 hour tutorial.

NOTE: Tutorials begin in Week 2.
Classes are face-to-face (no online classes).

Recommended Texts and/or Materials
You do not need to buy these books. Handouts of readings that cover similar material will be distributed via iLearn.
Also available as a Kindle book.
The library has complimentary electronic copies where a certain number of users can access the book at the same time.

Additional readings
Hyndman, Rob J and Athanasopoulos, George (2014), Forecasting: principles and practice, Online: https://www.otexts.org/fpp/

Technology Used and Required
Students will learn to use Microsoft Excel (compulsory) and MINITAB (optional).

Unit Web Page
The web page for this unit can be found at: iLearn http://ilearn.mq.edu.au

Teaching and Learning Strategy
This unit is lecture- and tutorial-based, as well as pre-recorded concept videos. Typically, the class-time structure will be like this:

1. Lectures: Business Forecasting theory and concepts will be discussed. We will establish links between theory and your personal knowledge in a business strategic planning setting during class discussions.

2. Tutorials: Students are required to work on some tasks of business forecasting solutions using several models and techniques. Student participation and meaningful contribution are essential to understand business forecasting concepts and calculations.

Lecture notes will be posted before each lecture on iLearn.
### Unit Schedule

<table>
<thead>
<tr>
<th>Week/S</th>
<th>Topic</th>
<th>Book Chapter</th>
<th>Assessment</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td><strong>Introduction to Forecasting in Management</strong>&lt;br&gt;• Explaining the unit outline.&lt;br&gt;• The meaning and philosophy of forecasting.&lt;br&gt;• Organisations, planning and budgeting.</td>
<td>Hanke &amp; Wichern (H&amp;W) Ch. 1&lt;br&gt;Hyndman &amp; Athanasopoulos (H&amp;A) Ch. 1</td>
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<tr>
<td>Week 2</td>
<td><strong>The Forecasting Environment</strong>&lt;br&gt;• Evaluation of forecasting tasks.&lt;br&gt;• Definition of time series&lt;br&gt;• Sources of data for prediction&lt;br&gt;• Analysing components of -Time Series.&lt;br&gt;• Stationarity</td>
<td>H&amp;W: Ch. 2, 3, 5&lt;br&gt;H&amp;A: Ch. 2</td>
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<tr>
<td>Weeks 3-6</td>
<td><strong>Introduction to Quantitative Forecasting Techniques</strong>&lt;br&gt;• Errors of prediction, Costs of errors&lt;br&gt;• Simple predictor models&lt;br&gt;• Naive, MA, SES</td>
<td>H&amp;W: Ch. 4, 5&lt;br&gt;H&amp;A: Ch. 2, 7</td>
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<td><strong>Incorporating Steps and Trends</strong>&lt;br&gt;• Prediction of trends&lt;br&gt;• Holts smoothing model&lt;br&gt;• Trend extrapolation</td>
<td>H&amp;W: Ch. 4, 5&lt;br&gt;H&amp;A: Ch. 7</td>
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<td></td>
<td><strong>Exploring Seasonality</strong>&lt;br&gt;• Seasonal models&lt;br&gt;• De-seasonalising data&lt;br&gt;• Decomposition&lt;br&gt;• Winters Smoothing Model</td>
<td>H&amp;W: Ch. 4, 5&lt;br&gt;H&amp;A: Ch. 6, 7</td>
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<tr>
<td>Weeks</td>
<td>Regression Models (I)</td>
<td>H&amp;W: Ch. 6, 7</td>
<td>H&amp;A: Ch. 4, 5</td>
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<tr>
<td>7-9</td>
<td>• Introduction to Regression models.</td>
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<td>• Ways to Evaluate Models</td>
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<td>• Diagnosing Regression Models</td>
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<tr>
<th>Regression Models (II)</th>
<th></th>
<th>H&amp;W: Ch. 7, 8</th>
<th>H&amp;A: Ch. 4, 5, 9</th>
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<tbody>
<tr>
<td>• Dummy Variables</td>
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<tr>
<td>• Trends in Regression</td>
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<td>• Autoregressions</td>
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| Quiz 1: Due (Week 7) - See ilearn page for more detail                                                    |                                 |              |                  |
| Case Study Report 1: Due (Week 8) - See ilearn page for more detail                                      |                                 |              |                  |

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<thead>
<tr>
<th>Week</th>
<th>Business Indicators</th>
<th>Quiz 2: Due (Week 10) - See ilearn page for more detail</th>
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<tr>
<td>10</td>
<td>• Leading Indicators</td>
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<td>• Cycles</td>
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<td>• Anticipatory Surveys</td>
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<tr>
<th>Week</th>
<th>Judgmental Forecasting (I)</th>
<th>H&amp;W: Ch. 10</th>
<th>H&amp;A: Ch. 3</th>
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<tr>
<td>11</td>
<td>• Judgmental methods</td>
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<td>• Subjective probability assessments.</td>
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<td></td>
<td>• The role of judgmental prediction in the organisation</td>
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<tr>
<th>Judgmental Forecasting (II)</th>
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<th>H&amp;W: Ch. 10</th>
<th>H&amp;A: Ch. 3</th>
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<tr>
<td>• Scenario development methods</td>
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<td>• DELPHI approaches</td>
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<td>• Analogy methods</td>
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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, (e.g. 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

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/

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

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

https://unitguides.mq.edu.au/unit_offerings/161492/unit_guide/print
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 2024.02 of the Handbook