BUSA3015

Business Forecasting

Session 2, In person-scheduled-weekday, North Ryde 2023

Department of Actuarial Studies and Business Analytics

Contents

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General Information

Unit convenor and teaching staff
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Administrator
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Credit points
10

Prerequisites
130cp at 1000 level or above including (STAT150 or STAT1250 or STAT170 or STAT1170 or MKTG216 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

Name	Weighting	Hurdle	Due
Online quizzes	10%	No	week 7 and week 10 (5pm Friday - 11pm Sunday)
Critical Thinking - Applying forecasting to problems - Two Reports	40%	No	week 8 and week 12 (11:59pm 25th Sep and 23 Oct)
Final Exam	50%	No	University Examination Period

Online quizzes

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 10 hours
Due: **week 7 and week 10 (5pm Friday - 11pm Sunday)**
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 (11:59pm 25th Sep and 23 Oct)**
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: **University Examination Period**
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.

[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

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 may be face-to-face or online depending on your choice of timetable and the prevailing public health advice due to the pandemic and health situation

The timetable for classes can be found on the University web site at: https://timetables.mq.edu.au/2022/

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.

Hanke, John E & Wichern, Dean W, (2013), *Business Forecasting,* (International Edition) Pearson, (9th Edition) ISBN: 9781292023007, ISBN 10: 1292023007

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*, OTexts 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*

Passing the Unit

Students must obtain a mark of 50% to pass the unit. There are no other hurdle requirements for passing the unit.

Unit Schedule

Week/s	Topic	Book Chapter	Assessment
Week 1	**Introduction to Forecasting in Management** • Explaining the unit outline. • The meaning and philosophy of forecasting. • Organisations, planning and budgeting.	Hanke & Wichern (H&W) Ch. 1 Hyndman & Athanasopoulos (H&A) Ch. 1	
Week 2	**The Forecasting Environment** • Evaluation of forecasting tasks. • Definition of time series • Sources of data for prediction • Analysing components of -Time Series. • Stationarity	H&W: Ch. 2, 3, 5 H&A: Ch. 2	

Weeks 3-6	**Introduction to Quantitative Forecasting Techniques** • Errors of prediction, Costs of errors • Simple predictor models • Naïve, MA, SES **Incorporating Steps and Trends** • Prediction of trends • Holts smoothing model • Trend extrapolation **Exploring Seasonality** • Seasonal models • De-seasonalising data • Decomposition • Winters Smoothing Model	H&W: Ch. 4, 5 H&A: Ch. 2, 7 H&W: Ch. 4, 5 H&A: Ch. 7 H&W: Ch. 4, 5 H&A: Ch. 6, 7	
Weeks 7-9	**Regression Models (I)** • Introduction to Regression models. • Ways to Evaluate Models • Diagnosing Regression Models **Regression Models (II)** • Dummy Variables • Trends in Regression • Autoregressions	H&W: Ch. 6, 7 H&A: Ch. 4, 5 H&W: Ch. 7, 8 H&A: Ch. 4, 5, 9	**Quiz 1** **5pm Friday to 11pm Sunday** **(Week 7)** **Case Study Report 1 -** **Due Monday 25th Sep, 11:59pm Sydney time** **(Week 8)**

Week 10	**Business Indicators** • Leading Indicators • Cycles • Anticipatory Surveys		**Quiz 2** **5pm Friday to 11pm Sunday** **(Week 10)**
Week 11	**Judgmental Forecasting (I)** • Judgmental methods • Subjective probability assessments. • The role of judgmental prediction in the organisation **Judgmental Forecasting (II)** • Scenario development methods • DELPHI approaches • Analogy methods	H&W: Ch. 10 H&A: Ch. 3 H&W: Ch. 10 H&A: Ch. 3	
Week 12	**Judgmental Forecasting and Forecast Adjustments (I)** • Other types of Judgmental Forecast Methods • Judgmental Forecast Examples • Combining Forecasts **Judgmental Forecasting and Forecast Adjustments (II)** • Using all the information to forecast. • Putting it all together. • Forecasting in practice. • The future of forecasting	H&W: Ch. 10 H&A: Ch. 3 H&W: Ch. 10, 11 H&A: Ch. 3	**Case Study Report 2 –** **Due Monday, 23th Oct, 11:59pm Sydney time**
Week 13	Revision		

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 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

- 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 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.