



BUSA2020

Fundamentals of Business Analytics

Session 2, Special circumstance 2020

Department of Actuarial Studies and Business Analytics

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>General Assessment Information</u>	3
<u>Assessment Tasks</u>	3
<u>Delivery and Resources</u>	5
<u>Unit Schedule</u>	5
<u>Policies and Procedures</u>	7

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Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group learning activities on campus for the second half-year, while keeping an online version available for those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face and online activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff

Lecturer and Unit Convenor

Yanlin Shi

yanlin.shi@mq.edu.au

See iLearn

Angela Chow

angela.chow@mq.edu.au

Credit points

10

Prerequisites

(STAT150 or STAT1250 or STAT170 or STAT1170 or STAT171 or STAT1371) and
(COMP115 or COMP1000 or ISYS114 or COMP1350)

Corequisites

Co-badged status

Unit description

Growing quantities of data collected by business, government, the internet and social media provide opportunities for better management and a better society through evidence-based decision-making and the provision of new services. This unit introduces students to quantitative techniques and approaches to achieve these goals. Students will gain hands-on experience with software tools to analyse and present quantitative data. Students will be introduced to the discovery and analysis of social networks, social trends, and relationships amongst industry factors using spreadsheets and data visualisation software. The unit thus is an introduction to the technical and philosophical skills required, and the many applications of business analytics.

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: Explore different methods of data analysis and presentation for social networks, complex systems and relational links.

ULO2: Create interactive models using appropriate software to aid decision-makers in understanding interrelationships and trends.

ULO3: Apply intermediate skills in spreadsheets and data visualisation software to demonstrate trends and relationships among factors in industry and society.

ULO4: Analyse government, industry and social media data to identify relationships and trends.

ULO5: Evaluate conclusions drawn from different data and analytic tools.

General Assessment Information

- Assessment criteria for all assessment tasks will be provided on the unit iLearn site.
- It is the responsibility of students to view their marks for each within-session assessment on iLearn within 20 working days of posting. If there are any discrepancies, students must contact the unit convenor immediately. Failure to do so will mean that queries received after the release of final results regarding assessment marks (not including the final exam mark) will not be addressed.
- In the cases where a special consideration application is approved, the student may be offered an alternative assessment or may receive a mark based on the percentage mark achieved by the student in one or more other assessment tasks, at the unit convenor's discretion.

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Spreadsheet Functions</u>	10%	No	Week 4
<u>Interactive Model</u>	30%	No	Week 8
<u>Data Visualisation</u>	30%	No	Week 11
<u>Model Sensitivity Analysis</u>	30%	No	Week 13

Spreadsheet Functions

Assessment Type ¹: Quantitative analysis task

Indicative Time on Task ²: 5 hours

Due: **Week 4**

Weighting: **10%**

Students will be asked to demonstrate skills in data manipulation.

On successful completion you will be able to:

- Explore different methods of data analysis and presentation for social networks, complex systems and relational links.
- Apply intermediate skills in spreadsheets and data visualisation software to demonstrate trends and relationships among factors in industry and society.

Interactive Model

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 20 hours

Due: **Week 8**

Weighting: **30%**

Groups will create an interactive model using appropriate software tools to allow a user to better understand relationships within a chosen problem domain.

On successful completion you will be able to:

- Create interactive models using appropriate software to aid decision-makers in understanding interrelationships and trends.
- Apply intermediate skills in spreadsheets and data visualisation software to demonstrate trends and relationships among factors in industry and society.
- Analyse government, industry and social media data to identify relationships and trends.

Data Visualisation

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 15 hours

Due: **Week 11**

Weighting: **30%**

Students will use visualisation software to extract spreadsheet data to demonstrate interrelationships in different ways appropriate to the task.

On successful completion you will be able to:

- Apply intermediate skills in spreadsheets and data visualisation software to demonstrate trends and relationships among factors in industry and society.
- Evaluate conclusions drawn from different data and analytic tools.

Model Sensitivity Analysis

Assessment Type ¹: Quantitative analysis task

Indicative Time on Task ²: 20 hours

Due: **Week 13**

Weighting: **30%**

Students will create a model of complex interaction and test the sensitivity of outcomes to various inputs.

On successful completion you will be able to:

- Explore different methods of data analysis and presentation for social networks, complex systems and relational links.
- Analyse government, industry and social media data to identify relationships and trends.
- Evaluate conclusions drawn from different data and analytic tools.

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

Textbook Camm, Cochran, Fry, Ohlmann, Anderson & Sweeney, (2019) Business Analytics, 3ed, Cengage ISBN 978133740642.

Camm et al also offer the text book online and the course will be structured around MindTap.

Technology used and required

Students should have access to standard spreadsheet software. We will be using MSEXcel® and make reference to similar software by other brands such as Minitab®. We will make extensive use of Data-Visualisation software, Tableau®. We have a teaching license for the semester, and students will be given a key to download the full program for use in study at home.

Inherent requirements

Students are expected to install MSEXcel® and Tableau® (either Windows or Apple OS) to their own laptops and/or computers. They will use the software in the online-lecture and tutorials.

Recommended readings

Suggested online readings, and resources are presented in each week's exercises. Without a formal textbook students will need to routinely read the sources shared in the unit website, and contribute others that they find. **Unit Web Page** Course material is available on the learning management system (iLearn). The general online website is <http://ilearn.mq.edu.au>

Unit Schedule

We are still learning about the expectations of industry, and the capabilities and interests of our students, so we may make small changes to the timing and attention to different topics as the

unit progresses.

Week	Content	Text Book Sections
1	Introduction: Text Book (Camm et al) and MindTap. Basic Spreadsheet Functions	1.1, 1.2, 1.3, 1.4, 1.5 2.1, 2.2, 2.3, 2.4 Appendix A
2	Spreadsheet Functions continue: Graphs & Data	2.5, 2.6, 2.7, 2.8, 2.9
3	Advanced Spreadsheet Functions. Tidy data, Pivot Tables, Pivot Charts	3.1, 3.2, 3.3
4	Statistical Inferencing Model building – Regression and Multiple Regression	6.2, 6.5, 6.6 7.1, 7.2, 7.3, 7.4, 7.5 Spreadsheet Functions assignment (10%) due.
5	Tableau Guest Speaker	
6	Dashboards in Tableau Time Series analysis and Forecasting	8.1, 8.2, 8.3, 8.4
7	Storyboards in Tableau Guest Speaker	
8	Spreadsheet Models	10.1, 10.2, 10.3, 10.4 Data visualisation assignment (30%) due.
9	Modelling Uncertainty – Events and Probabilities	5.1, 5.2, 5.3, 5.4
10	What-if Sensitivity Analysis	11.1, 11.2, 11.3, 11.4
11	Optimisation	12.1, 12.2, 12.3, 12.4, 12.5 Sensitivity Analysis assignment (30%) due.
12	Data Mining	4.1, 4.2, 4.3
13	Summary and looking to next semester – Logistical regression	9.3 Interactive Model assignment (30%) due

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

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

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/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

Student Support

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

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [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

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

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.