



ECON1031

Quantitative Methods in Economics, Business and Finance

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

Department of Economics

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General Information

Unit convenor and teaching staff Jordi McKenzie jordi.mckenzie@mq.edu.au
Credit points 10
Prerequisites
Corequisites
Co-badged status
Unit description This unit introduces quantitative methods used throughout business, economics, and finance. Emphasis is placed on developing skills to analyse real-world problems, using logical thinking and mathematical techniques. The techniques covered may include functions, simultaneous equations, financial mathematics, calculus and probability. The problems studied can include pricing decisions, optimal production, planning, economic policy questions and financial portfolio selection. By emphasising the practical application of mathematical principles, this unit equips students with the necessary quantitative literacy to navigate complex problems in business, economics, and finance.

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 describe the role of mathematics and quantitative techniques within economics, business and finance.

ULO2: Identify and practice the quantitative skills required to work with mathematical models in economics, business, finance and the economics of sustainability issues.

ULO3: Effectively communicate quantitative analysis and relevant associated information.

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
Skills development: Quantitative analysis	20%	No	Week 7	Individual	No	Observed
Formal examination	50%	No	Formal exam period	Individual	No	Observed
Professional practice: Analytical problem solving	30%	No	06/10/2026	Individual	Yes	Open

Skills development: Quantitative analysis

Assessment Type ¹: Problem-based task

Indicative Time on Task ²: 15 hours

Due: **Week 7**

Weighting: **20%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

The purpose of this assessment is for you to practice how to solve a problem on the spot. You will work independently on a problem set to express your understanding of discipline knowledge.

Skills in focus:

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

Deliverable(s): In-class problem set

Individual assessment

On successful completion you will be able to:

- Identify and practice the quantitative skills required to work with mathematical models in economics, business, finance and the economics of sustainability issues.

Formal examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 35 hours

Due: **Formal exam period**

Weighting: **50%**

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, on campus, closed-book 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:

- Identify and describe the role of mathematics and quantitative techniques within economics, business and finance.
- Effectively communicate quantitative analysis and relevant associated information.

Professional practice: Analytical problem solving

Assessment Type ¹: Problem-based task

Indicative Time on Task ²: 25 hours

Due: **06/10/2026**

Weighting: **30%**

Groupwork/Individual: Individual

Short extension ³: Yes

AI Approach: Open

The purpose of this assessment is for you to identify and practice the quantitative skills required to work with mathematical models in economics, business, finance and the economics of sustainability issues.

Skills in focus:

- Critical thinking and problem solving
- Discipline knowledge
- Communication skills

Deliverable(s): Problem set questions

Individual assessment

On successful completion you will be able to:

- Identify and describe the role of mathematics and quantitative techniques within economics, business and finance.
- Identify and practice the quantitative skills required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and relevant associated information.

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

The delivery format of this Unit is as follows:

1. **Two-hour face-to-face (f2f) lecture** (on campus) on P.G.Price Lecture. The weekly f2f lectures will be live-streamed for the online students as well as be recorded and made available later on ECHO360.
2. **One hour tutorial** which can be in person (on campus) or online (via zoom) depending

on your class registration.

PRESCRIBED TEXT

Essential Mathematics for Economics and Business, 4 Ed., by Teresa Bradley.

TECHNOLOGY NEEDS

WileyPLUS

One of the electronic versions of the required text, Essential Mathematics for Economics and Business, 4 Ed., by Teresa Bradley, comes with access to the WileyPLUS website, see here <http://www.wileydirect.com.au/buy/essential-mathematics-for-economics-and-business-4th-edition/>. On this web site students will be able to develop their own study plan.

Spreadsheet

The use of a spreadsheet will often be helpful for tasks in this unit. For students who don't own or wish to use Microsoft Excel, a free alternative is provided by OpenOffice (<http://www.openoffice.org>).

EMAIL USE

It is University policy that the University issued email account will be used for official University communication. All students are required to access their University account frequently. Only contact Macquarie University staff (including tutors), using your official MQ student's account because this is one method used to verify your identity.

Unit Schedule

Week 1	Basic Concepts in Mathematical Economics, Chapters 1 & 2.	Tutorial 1
Week 2	Simultaneous Linear Equations and Quadratic Functions, Chapter 3 & 4.	Tutorial 2
Week 3	Exponentiation, Logarithms, Non-linear Growth Models, Chapter 4.	Tutorial 3
Week 4	Financial Mathematics I: Compound Interest, Continuous Compounding, Annuities, Chapter 5.	Tutorial 4
Week 5	Financial Mathematics II: Perpetuity, NPV, IRR, Chapter 5. Differentiation I: Secant Line, Tangent Line, First Derivative, Increasing and Decreasing Functions, Chapter 6.	Tutorial 5
Week 6	Differentiation II: Second Derivative, Chain Rule, Chapter 6. Optimizing Total Revenue and Profit, Elasticity of Demand. Skills development: Quantitative analysis - Quiz 1 (10%): Quiz coverage: Weeks 1 to 5 Lectures, all inclusive	Tutorial 6

	Mid-session break	
Week 7	Differentiation III: Derivatives of Exponential and Logarithmic Functions, Limits, Chapter 6. Multivariable Calculus: Functions of Many Variables, Partial Differentiation, Chapter 7.	Tutorial 7
Week 8	Partial Derivatives Cont'd, Total Derivative, Small Increment Formula, Differential, Chapter 7.	Tutorial 8
Week 9	Indifference Curves, Implicit Differentiation, Utility Maximization, Chapter 7. Integration, Integration by Substitution, Areas and Definite Integrals, Consumer and Producer Surplus, Chapter 8. Professional practice: Analytical problem solving (30%) Due: Tuesday 11:55pm, 06/10/2026	Tutorial 9
Week 10	Differential Equations, Marginal Revenue and Marginal Cost, Differential Equations and Rates of Change, Limited Growth, Constant Proportional Rate of Growth, Chapter 8.	Tutorial 10
Week 11	Probability and Random Variables, Probability Density Functions, Cumulative Distribution Functions as Integrals. Lecture Notes. Skills development: Quantitative analysis - Quiz 2 (10%): Quiz coverage: Weeks 6 to 10 Lectures, all inclusive	Tutorial 11
Week 12	Continuous Random Variables, Probability Density Function, Cumulative Density Function, The Normal Distribution. Lecture Notes	Tutorial 12
Week 13	Revision of Outstanding Material. Practice Exam. Final exam (50%): During the University Examination Period Coverage: All topics	Tutorial 13

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.smq.edu.au\)](https://policies.smq.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) (<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) (<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 2026.04 of the [Handbook](#)