ECON1031

Quantitative Methods in Economics, Business and Finance

Session 1, Special circumstances 2021

Department of Economics

Contents

Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face 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
Andrew Evans
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Credit points
10

Prerequisites

Corequisites

Co-badged status

Unit description
This unit is highly recommended for all students. Its objective is to help students formulate and analyse problems in business, economics and finance using the power of logical thinking and mathematics. The unit is multi-disciplinary and develops literacy in the quantitative techniques commonly used for planning, resource allocation, the solution of macroeconomic models, optimal production and pricing problems, and portfolio selection. The topics covered include: functions of several variables; calculus of single-variable and multiple-variable functions; optimisation; and matrix algebra.

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 within economics, business and finance.

ULO2: Identify and practice the mathematical skill 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

Online Tutorial Quizzes

Weighting: 4% each (total 20%)

The online tutorial quizzes must be attempted in weeks 4,6,8,10 and 12 during allocated window provided outlined on iLearn. Once you begin the quiz you will have 25 minutes to complete the quiz.

If students undertake a quiz off-campus, it is their responsibility to ensure the compatibility of the software they use with that of the university. Technical failures that occur when a quiz is done off-campus cannot be verified by the university and will result in a mark of zero for that quiz. Students who do not submit this task during the assigned time receive a mark of zero. This penalty does not apply when an application for Special Consideration has been made and approved. Note: applications for Special Consideration Policy must be made within 5 (five) business days of the due date and time. In these circumstances, the student may wish to consult the University's Special Consideration policy.

Assignment: Due Monday 4pm in week 8 and week 13.

Weighting: 20 % each (total 40%)

There will be two individual assignments to be completed during the session. The first assignment is due by 4pm on Monday Week 8 and the second assignment is due by 4pm on Monday Week 13.

Submission:

• Submit your assignment via Turnitin by the outlined deadline.

• The submission link will be available on iLearn one week prior to the relevant assignment deadline.

• No extensions will be granted except for cases in which an application for Special Consideration is made and approved.

• Late submissions will be accepted up to 96 hours after the due date and time.

• There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission incurs a 20% penalty).

Final Exam: University Examination Period

Weighting: 40%

A two-hour open-book online examination, consisting of multiple choice, descriptive short and long answer questions, will be held during the University Examination Period. The examination will be administered online. Details of the structure of the final examination will be provided when available during the semester.

Assessment Tasks

Name	Weighting	Hurdle	Due
Online final examination	40%	No	Exam period
Assignment	40%	No	Monday Week 8 and Monday Week 13
Tutorial quizzes Online	20%	No	Weeks 4, 6, 8, 10 and 12

Online final examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 30 hours
Due: **Exam period**
Weighting: **40%**

A two-hour open-book examination, consisting of descriptive short and long answer questions, will be held during the University Examination Period. The examination will be administered online.

On successful completion you will be able to:

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

Assignment

Assessment Type [1]: Problem set
Indicative Time on Task [2]: 30 hours
Due: **Monday Week 8 and Monday Week 13**
Weighting: **40%**

Problem sets (x2 - 20% each)

On successful completion you will be able to:

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

Tutorial quizzes Online

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 15 hours
Due: **Weeks 4, 6, 8, 10 and 12**
Weighting: **20%**

Non invigilated online quizzes. Students will be given a 25-minute open book online quiz in weeks 4, 6, 8, 10 and 12. The quizzes are of equal value (4% each).

On successful completion you will be able to:

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

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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.

[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

Required and Recommended Texts and/or Materials

The required and recommended text for ECON1031 is Essential Mathematics for Economics and Business, 4th Ed., by Teresa Bradley.

Technology Used and Required

Unit Web Page

iLearn is an online program available at https://ilearn.mq.edu.au/login/MQ/ through

which students will be able to access resources to assist them throughout the semester.

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).

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, Ch.5 Online Quiz 1	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 Online Quiz 2	Tutorial 6
Week 7	Differentiation III: Derivatives of Exponential and Logarithmic Funct's, 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, Ch.7 Online Quiz 3 Assignment Due: Monday 4pm	Tutorial 8
Week 9	Indifference Curves, Implicit Differentiation, Utility Maximization, Chapter 7. Integration, Integration by Substitution, Areas and Definite Integrals, Consumer and Producer Surplus, Ch.8	Tutorial 9
Week 10	Differential Equations, Marginal Revenue and Marginal Cost, Differential Equations and Rates of Change, Limited Growth, Constant Proportional Rate of Growth, Ch. 8 Online Quiz 4.	Tutorial 10
Week 11	Probability and Random Variables, Probability Density Functions, Cumulative Distribution Functions as Integrals. Lecture Notes.	Tutorial 11
Week 12	Expected Value and Median as Integration Problems, Variance. Lecture Notes Online Quiz 5	Tutorial 12
Week 13	Multiple Random Variables: Double Integral, Joint Density Functions, Joint to Marginal PDF's, Independence, Covariance, Correlation Assignment Due: Monday 4pm.	Tutorial 13

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
- Grade Appeal Policy
- Complaint Management 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

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.