



# ECON131

## Quantitative Methods in Economics, Business and Finance

S2 Evening 2018

*Dept of Economics*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff

Unit Convenor and Lecturer

Paul Crosby

[paul.crosby@mq.edu.au](mailto:paul.crosby@mq.edu.au)

E4A 452

Consultation TBA

George Milunovich

[george.milunovich@mq.edu.au](mailto:george.milunovich@mq.edu.au)

Credit points

3

Prerequisites

Corequisites

Co-badged status

Unit description

This unit is highly recommended for students who have not studied HSC Mathematics, but who intend to enrol in units for which it is assumed knowledge. The unit is also recommended for students who have completed HSC-level Mathematics and who need to extend their knowledge of mathematical techniques to applications in business, economics and finance. Its objective is to allow students to formulate and analyse problems in business, economics and finance in the language of, and using the power of, mathematics. The unit is a multi-disciplinary unit. It develops literacy in the quantitative techniques commonly used for planning and resource allocation. It is designed to provide students with the confidence to apply these techniques to practical problems relevant to the understanding of sustainability issues and to a myriad of problems in business, economics and finance. The applications vary from year to year, but typically include the solution of macroeconomic models, optimal production and pricing problems, and portfolio selection. The mathematical 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:

- Understand the role of mathematics within economics, business and finance.
- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and information.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Tutorial Work</u>	35%	No	Ongoing
<u>Class Test</u>	40%	No	Week 12 Lecture: Oct 31st 2018
<u>Assignment</u>	25%	No	Week 14: Nov 14th 2018

### Tutorial Work

Due: **Ongoing**

Weighting: **35%**

#### Tutorial Quizzes (Best 4 out of 5)

**Tutorial Quizzes to be held DURING the tutorials in weeks 4, 6, 9, 11 and 13.**

Students will be given short (25 minute) quizzes during the tutorial in weeks 4, 6, 9, 11 and 13 of the semester. Students who do not submit a quiz will be awarded a mark of zero for that particular quiz and will not be permitted to attempt it for credit at a later date. The quizzes are of equal value (7.5% each). The topic for each quiz will be announced on iLearn the week prior.

For the purposes of assessment, the best 4 out of 5 quizzes will be considered.

In cases where a student submits a satisfactory Special Consideration application for missing more than 1 quiz, which explains the serious disruption for a specific quiz, and if the student's prior attendance and performance is satisfactory, a student's quiz marks will be re-weighted.

The remaining 5% of the tutorial work assessment grade will be awarded for tutorial participation.

On successful completion you will be able to:

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

## Class Test

Due: **Week 12 Lecture: Oct 31st 2018**

Weighting: **40%**

There is one class test in ECON131. It will be conducted in lecture in Week 12. The test is worth 40% of the final grade. The test will be of 80 minutes duration and will be conducted during the lecture. Since the purpose of the test is purely summative, students will not be provided with written feedback.

Class test instructions and sample questions will be posted on iLearn in a clearly labelled folder, titled: "Class Test".

Students must be available during the time of the lecture class to sit the class test. Students who fail to sit for the class test during the designated time will be awarded a mark of zero.

The only exception to this is if a student could not do the test because of documented illness or unavoidable disruption. In these circumstances this student may wish to consult the University's Special Consideration policy - <https://students.mq.edu.au/study/my-study-program/special-consideration>

If a student satisfies the Special Consideration policy they will be required to complete a supplementary assessment task two weeks after the date of the original assessment and this could take the form of an oral task.

On successful completion you will be able to:

- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and information.

## Assignment

Due: **Week 14: Nov 14th 2018**

Weighting: **25%**

Students will be given one assignment worth 25% of the final grade. The assignment is to be submitted via BESS as well as TurnItIn.

Assignment submission instructions will be posted on iLearn in a clearly labelled folder, titled: "Assignment".

It is intended that students will work on the assignment independently. Students who have plagiarised will be awarded a mark of zero, will not be permitted to resubmit, and may be reported to the University Disciplinary Committee for further action.

No extensions will be granted. 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 – 20% penalty). This penalty does not apply for cases in which an application for Special Consideration is made and approved. When an application for Special Consideration has been approved, policy allows for the provision of one additional assessment task. This task need not be the same as the missed assessment.

On successful completion you will be able to:

- Understand the role of mathematics within economics, business and finance.
- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and information.

## Delivery and Resources

### Classes

Weekly classes in ECON131 are composed of a two hour lecture and a one hour tutorial. Unit materials are learnt by attending lectures, tutorials, and through independent learning. Students should attend a two-hour lecture every week (**beginning in week one**) as well as the one hour tutorial (**also beginning in week one**). The timetable can be viewed at <https://timetables.mq.edu.au/2018/>. All students attend the same lecture stream. There are a number of tutorial classes, and you must register (via e-Student) and physically attend the same class for all the tutorials. Tutorial classes are **not interchangeable**. Although the same content is covered in each class, the tutor may cover the material at a different pace, and in a slightly different way, in each class. Your class registration is complete (and correct) once you have registered for ALL activities, and have registered for the SAME class for all tutorials.

### Tutorials

A tutorial consists of TWO distinct components:

- **Tutorial questions and participation:** before each tutorial a selection of questions will be posted on the unit iLearn page. These are to be attempted **before** your tutorial. Your tutor will work through these problems with you during your designated tutorial time. Your participation in this process is worth 5% of your final grade.
- **Tutorial quizzes:** these are 25 minute long closed book quizzes, to be attempted and submitted during the tutorials in weeks 4, 6, 9, 11 and 13. Each quiz is worth 7.5% of your final grade. The best 4 out of the 5 quizzes will be counted towards your final grade, making the total marks available for tutorial quizzes is 30%.

Please refer to the section on "Assessment Tasks" for the precise detail of the unit's assessment components and weights.

### Recommended Texts and/or Materials

The recommended text for ECON131 is Essential Mathematics for Economics and Business, 4

Ed., by Teresa Bradley.

Additional recommended reading material will be provided during the semester.

## **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.

The following information will be available on iLearn:

- Announcements
- Staff consultation hours and contact details
- Information on assessments
- Lecture notes
- Tutorial questions
- Solutions to tutorial questions
- Sample class test
- Assignment
- Other relevant material

You are strongly encouraged to regularly visit the unit iLearn site and use it as a resource centre to assist with your learning.

If you are unable to access the unit iLearn site because you are not aware of or have forgotten your username and password, please contact the IT helpdesk located on Level 1 of the Library on 02 9850 6500. The IT helpdesk will also be able to assist you with using iLearn.

Please note that there is also a help feature in iLearn and you may refer to this instead for assistance in using iLearn. If you have contacted the helpdesk in regard to your username and password and you are still unable to login to iLearn you should then contact the Unit Convenor.

Please remember to log out when you have finished using iLearn. Failure to do so could result in unauthorised access to your iLearn account.

### **WileyPLUS**

The recommended text, Essential Mathematics for Economics and Business, 4 Ed., by Teresa Bradley, comes with access to the WileyPLUS website. On this website students will be able to develop their own study plan and access an array of practice questions related to the topics covered in the unit.

### **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>).

## Teaching and Learning Strategy

The teaching strategy in ECON131 recognizes that students learn independently and assume responsibility for the learning process and with academic integrity.

Students are expected to participate in the unit by attending lectures, reading the provided material, thoroughly revising the lecture notes and preparing answers to the provided exercise questions and reading additional material about important issues in economics and issues about sustainability.

## Unit Schedule

	Lecture Topic and Corresponding Textbook Chapter	Tutorial Details
<b>Week 1</b>	Basic Concepts in Mathematical Economics, Chapters 1 & 2	Tutorial 1
<b>Week 2</b>	Demand and Supply in Competitive Markets, Chapter 3	Tutorial 2
<b>Week 3</b>	Quadratics and Economics, Chapter 4	Tutorial 3
<b>Week 4</b>	Non-linear Growth Models, Chapter 4	Tutorial 4: <b>Tutorial Quiz 1</b>
<b>Week 5</b>	Financial Mathematics I, Chapter 5	Tutorial 5
<b>Week 6</b>	Financial Mathematics II, Chapter 5	Tutorial 6: <b>Tutorial Quiz 2</b>
<b>Week 7</b>	Economic Optimisation, Chapter 6	Tutorial 7
<b>Week 8</b>	Elasticity and the Derivative, Chapter 6	Tutorial 8
<b>Week 9</b>	Producer Theory, Chapter 7	Tutorial 9: <b>Tutorial Quiz 3</b>
<b>Week 10</b>	Consumer Theory, Chapter 7	Tutorial 10:
<b>Week 11</b>	Consumer and Producer Surplus, Chapter 8	Tutorial 11 <b>Tutorial Quiz 4</b>

Week 12	In-Lecture Test	Tutorial 12
Week 13	Assignment Revision	Tutorial 13: Tutorial Quiz 5

## 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.*)

Undergraduate 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 shown in *iLearn*, 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](https://ask.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](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## 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](http://ask.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/](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.

## Graduate Capabilities

### Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

### Learning outcomes

- Understand the role of mathematics within economics, business and finance.
- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and information.

## Assessment tasks

- Tutorial Work
- Class Test
- Assignment

## Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

## Learning outcomes

- Understand the role of mathematics within economics, business and finance.
- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and information.

## Assessment tasks

- Tutorial Work
- Class Test
- Assignment

## Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

## Learning outcomes

- Understand the role of mathematics within economics, business and finance.
- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.

## Assessment tasks

- Tutorial Work

- Class Test
- Assignment

## Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

### Learning outcomes

- Understand the role of mathematics within economics, business and finance.
- Learn the mathematical skill required to work with mathematical models in economics, business, finance and the economics of sustainability issues.
- Effectively communicate quantitative analysis and information.

### Assessment tasks

- Tutorial Work
- Class Test
- Assignment