



# ECON131

## Quantitative Methods in Economics, Business and Finance

S2 Evening 2014

*Economics*

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#### **Disclaimer**

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

## General Information

Unit convenor and teaching staff

Unit Convenor

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E4A440

Available on iLearn

Credit points

3

Prerequisites

Corequisites

Co-badged status

Unit description

This unit is highly recommended for students who have not studied HSC Mathematics, but 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	Due
<u>Tutorial Home-Work</u>	10%	ongoing
<u>Tutorial Quizzes</u>	30%	ongoing
<u>Class Test</u>	35%	Week 12 Lecture
<u>Assignment</u>	25%	Week 15, Monday

### Tutorial Home-Work

Due: **ongoing**

Weighting: **10%**

#### Tutorial Home-Work

Tutorials will be held every week from Week 2 and onwards. The week before each tutorial class, students will be given a set of exercises based on the work recently covered in lectures. The tutorial questions and solutions will be published during the week following each class.

The tutorial home-work exercises require a total of approximately 1 hour of work each.

Students will be expected to participate to tutorials by answering questions and presenting their work in front of the class when requested by their tutor.

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.

### Tutorial Quizzes

Due: **ongoing**

Weighting: **30%**

#### Tutorial Quizzes (Best 7 out of 9)

Tutorial Quizzes to be held DURING the tutorials of Weeks 4, 5, 6, 7, 8, 9, 10, 11 & 13

Students will be given short online quizzes during the semester. These will be released during the tutorials. Each quiz is in the form of an online quiz, and is conducted via the WileyPLUS system during tutorials in weeks 4 - 13, except for Week 12. 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.

For the purposes of assessment, the best 7 out of 9 quizzes will be considered.

In cases where a student submits a satisfactory Special Consideration application for missing more than 2 quizzes, 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 quizzes are held during tutorials.**

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.

## **Class Test**

Due: **Week 12 Lecture**

Weighting: **35%**

There is one test in ECON131. It will be conducted in lectures in Week 12. The test is worth 35% 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.

Students must be available during the time of the lecture class to sit the class test.

The only exception to this is if a student could not do the quiz because of documented illness or unavoidable disruption. In these circumstances this student may wish to consult the University's Disruption to Studies policy- [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html)

If a student satisfies the Disruption to Studies 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:

- 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.

## Assignment

Due: **Week 15, Monday**

Weighting: **25%**

Students will be given one assignment worth 25% of the final grade. 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. Students who do not submit an assignment will be awarded a mark of zero for that assessment. In cases in which a student submits a satisfactory Special Consideration application, which documents incapacitation for at least 3 consecutive days, and if the student has a satisfactory record of attendance and performance in the previous assessment tasks, an appropriate extension will be granted to the student. The student will need to contact the unit convenor to discuss the terms of the extension once the extension has been formally granted.

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

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.
- 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 as well as the one hour tutorial beginning in the second week. The timetable can be viewed at <https://timetables.mq.edu.au/2014/>. All students attend the same lecture stream. There are a number of tutorial classes, and it is important to 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 FOUR distinct components:**

- **Tutorial Home-work and participation: these are written home-work exercises, to**

be attempted before your tutorial. (Worth 10%)

- **Tutorial Quizzes:** these are online quizzes, to be attempted during the tutorial, in the tutorial class and submitted in and during the tutorial. (Worth 30%) - usually, 25 minutes of tutorial time.
- **Tutor's Guidance -** Your tutor will review the previous week's lecture material and cover additional tutorial questions that are not part of your tutorial home-work - usually, 25 minutes of tutorial time.

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

### Required and Recommended Texts and/or Materials

The required text for ECON131 is Essential Mathematics for Economics and Business, 4 Ed., by Teresa Bradley

The URL and access details for WileyPLUS will be provided on the ECON131 iLearn site.

Additional recommended reading material will be provided during the semester.

## Technology Used and Required

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.

### Unit Web Page

The following information will be available on iLearn:

Unit Outline	Announcements
Information on Assessments	Staff consultation hours and contact details
<ul style="list-style-type: none"><li>• Lecture Notes</li><li>• Assignment</li><li>• Sample class tests</li></ul>	<ul style="list-style-type: none"><li>• Tutorial Questions</li><li>• Solutions to Tutorial Questions</li><li>• Other relevant material</li></ul>

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

If you are unable to access the website 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 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 required text, **Essential Mathematics for Economics and Business, 4 Ed.**, by Teresa Bradley, comes with access to the WileyPLUS website. The URL and access details for WileyPLUS will be provided on the ECON131 iLearn site. On this web site students will be able to develop their own study plan. Access to this web site will also be essential for the quizzes.

All students will have access to the quizzes section of the WileyPLUS website regardless of their purchase of a textbook.

### **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 AND TOPIC SCHEDULE**

Date	Topic and Required Reading
Week 1	Mathematical Preliminaries, Chapter 1 Linear Models, Chapter 2
Week 2	Simultaneous Equations, Chapter 3
Week 3	Non-linear models, Chapter 4
Week 4	Non-linear models, Chapter 4

Week 5	Financial Mathematics, Chapter 5
Week 6	Differentiation, Chapter 6
Week 7	Differentiation, Chapter 6
Week 8	Partial Differentiation, Chapter 7
Week 9	Partial Differentiation, Chapter 7
Week 10	Integration, Chapter 8
Week 11	Integration, Chapter 8
Week 12	In-Class Test
Week 13	Matrices, Chapter 9

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy [http://mq.edu.au/policy/docs/grievance\\_management/policy.html](http://mq.edu.au/policy/docs/grievance_management/policy.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html) *The Disruption to Studies Policy is effective from March 3 2014 and*



*replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of 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/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## **Academic Honesty**

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Further information on the academic honesty can be found in the Macquarie University Academic Honesty Policy at [http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html)

## **Grades**

Macquarie University uses the following grades in coursework units of study:

- HD - High Distinction
- D - Distinction
- CR - Credit
- P - Pass
- F - Fail

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy which is available at:

<http://www.mq.edu.au/policy/docs/grading/policy.html>

## **Grading Appeals**

If you have performed below expectations in any of the assessment tasks, and are considering lodging an appeal of grade please refer to the following website which provides information about these processes and the cut off dates in the first instance. Please read the instructions provided concerning what constitutes a valid ground for appeal before appealing your grade.

[http://www.businessandeconomics.mq.edu.au/new\\_and\\_current\\_students/undergraduate\\_current\\_students/how\\_do\\_i/grade\\_appeals/](http://www.businessandeconomics.mq.edu.au/new_and_current_students/undergraduate_current_students/how_do_i/grade_appeals/)

## Special Consideration Policy

The University is committed to equity and fairness in all aspects of its learning and teaching. In stating this commitment, the University recognises that there may be circumstances where a student is prevented by unavoidable disruption from performing in accordance with their ability. A special consideration policy exists to support students who experience serious and unavoidable disruption such that they do not reach their usual demonstrated performance level. The policy is available at:

[http://www.mq.edu.au/policy/docs/special\\_consideration/policy.html](http://www.mq.edu.au/policy/docs/special_consideration/policy.html)

## 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://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use 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 Home-Work
- Tutorial Quizzes
- 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.
- Effectively communicate quantitative analysis and information.

## **Assessment tasks**

- Tutorial Home-Work
- Tutorial Quizzes
- 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 outcome**

- Effectively communicate quantitative analysis and information.

## **Assessment tasks**

- Tutorial Home-Work
- Class Test
- Assignment

## **Socially and Environmentally Active and Responsible**

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

## **Learning outcomes**

- 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 Home-Work
- Tutorial Quizzes
- Class Test
- Assignment

## **Changes since First Published**

<b>Date</b>	<b>Description</b>
28/02/2014	The Description was updated.