ECON131
Quantitative Methods in Economics, Business and Finance
S1 Day 2017
Dept of Economics

Contents

General Information ........................................... 2
Learning Outcomes ........................................... 2
Assessment Tasks ............................................. 3
Delivery and Resources ....................................... 5
Unit Schedule ................................................... 7
Policies and Procedures ....................................... 8
Graduate Capabilities ......................................... 10

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.

http://unitguides.mq.edu.au/unit_offerings/72024/unit_guide/print 1
General Information

Unit convenor and teaching staff
Unit Convenor and Lecturer
Paul Crosby
paul.crosby@mq.edu.au
Contact via 02 9850 4842
E4A 447B
Consultation Hours: Tuesday 2pm - 4pm

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 http://students.mq.edu.au/student_admin/enrolmentguide/academicdates/

Learning Outcomes

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

3. Effectively communicate quantitative analysis and information.

### Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorial Work</td>
<td>35%</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Class Test</td>
<td>40%</td>
<td>Week 12 Lecture: May 30th 2017</td>
</tr>
<tr>
<td>Assignment</td>
<td>25%</td>
<td>Week 14: June 16th 2017</td>
</tr>
</tbody>
</table>

**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, 8, 10 and 13.**

Students will be given short (25 minute) quizzes during the tutorial in weeks 4, 6, 8, 10 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).

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

In cases where a student submits a satisfactory Disruption to Studies 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.

This Assessment Task relates to the following 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.

**Class Test**

**Due:** Week 12 Lecture: May 30th 2017  
**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.

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 test 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.

This Assessment Task relates to the following 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.

### Assignment

**Due:** Week 14: June 16th 2017  
**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 Disruption to Studies 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.

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

This Assessment Task relates to the following 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.

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/2017/. 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, 8, 10 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.

Required and Recommended Texts and/or Materials
The required and 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
iLearn is an online program available at [https://ilearn.mq.edu.au/login/MQ/](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 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 website 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](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**
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic and Corresponding Textbook Chapter</th>
<th>Tutorial Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basic Concepts in Mathematical Economics, Chapters 1 &amp; 2</td>
<td>Tutorial 1</td>
</tr>
<tr>
<td>2</td>
<td>Demand and Supply in Competitive Markets, Chapter 3</td>
<td>Tutorial 2</td>
</tr>
<tr>
<td>3</td>
<td>Quadratics and Economics, Chapter 4</td>
<td>Tutorial 3</td>
</tr>
<tr>
<td>4</td>
<td>Non-linear Growth Models, Chapter 4</td>
<td>Tutorial 4: Tutorial Quiz 1</td>
</tr>
<tr>
<td>5</td>
<td>Financial Mathematics I - Interest Accumulation and the Time Value of Money, Chapter 5</td>
<td>Tutorial 5</td>
</tr>
<tr>
<td>6</td>
<td>Financial Mathematics II - Investment Appraisal, Chapter 5</td>
<td>Tutorial 6: Tutorial Quiz 2</td>
</tr>
<tr>
<td>7</td>
<td>Economic Optimisation, Chapter 6</td>
<td>Tutorial 7</td>
</tr>
<tr>
<td>8</td>
<td>Elasticity and the Derivative, Chapter 6</td>
<td>Tutorial 8: Tutorial Quiz 3</td>
</tr>
<tr>
<td>9</td>
<td>Producer Theory, Chapter 7</td>
<td>Tutorial 9</td>
</tr>
<tr>
<td>10</td>
<td>Consumer Theory, Chapter 7</td>
<td>Tutorial 10: Tutorial Quiz 4</td>
</tr>
<tr>
<td>11</td>
<td>Consumer and Producer Surplus, Chapter 8</td>
<td>Tutorial 11</td>
</tr>
<tr>
<td>12</td>
<td>In-Lecture Test</td>
<td>Tutorial 12</td>
</tr>
<tr>
<td>13</td>
<td>Economics of Sustainability</td>
<td>Tutorial 13: Tutorial Quiz 5</td>
</tr>
</tbody>
</table>

**Policies and Procedures**

Macquarie University policies and procedures are accessible from [Policy Central](http://policy.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:
Student Support

Macquarie University provides a range of support services for students. For details, visit [http://students.mq.edu.au/support/](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 Enquiry Service

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

Equity 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.
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.

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