



# ACST829

## Capital Budgeting and Financial Modelling

S1 Day 2018

*Archive (Pre-2019) - Dept of Applied Finance and Actuarial Studies*

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#### Disclaimer

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## General Information

Unit convenor and teaching staff

Unit Convenor

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thursdays 11am-12pm during teaching weeks, or other times by appointment

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Credit points

4

Prerequisites

ACST603 or (admission to MActPrac post 2014)

Corequisites

Co-badged status

Unit description

This unit covers established methods for the valuation and appraisal of investment projects and related financial decisions. It also covers the new 'real options approach' to investment appraisal, including the application of exotic options pricing formulae to real options using Microsoft Excel to build financial models, and introducing students to Visual Basic/Excel macros for financial modelling.

## 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:

To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of financial models for this purpose.

To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods.

Develop an introductory understanding of the “real options approach” to investment appraisal.

Learn how to develop user defined functions using visual basic and use them from within excel.

Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

## General Assessment Information

For all assessments:

- Assessment criteria for all assessment tasks will be provided on the unit iLearn site.
- All individual assessment results will be made available under Grades on the website.
- It is the responsibility of students to view their marks for each within session assessment on iLearn within 20 working days of posting. If there are any discrepancies, students must contact the unit convenor immediately. Failure to do so will mean that queries received after the release of final results regarding assessment marks (not including the final exam mark) will not be addressed.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Class Test</u>	5%	No	22 March
<u>Assignment 1</u>	20%	No	29 March
<u>Assignment 2</u>	25%	No	10 May
<u>Final Examination</u>	50%	No	University Examination Period

### Class Test

Due: **22 March**

Weighting: **5%**

The class test will be 60 minute open-book written paper with no reading time, held during the lecture time in week 4. It will cover the material in Lectures 1 to 3 inclusive.

On successful completion you will be able to:

- To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of

financial models for this purpose.

## Assignment 1

Due: **29 March**

Weighting: **20%**

Students are required to complete two assignments as part of the assessment tasks, both of which to be submitted online via the iLearn site.

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. No submission will be accepted after solutions have been posted.

On successful completion you will be able to:

- To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of financial models for this purpose.
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods.
- Learn how to develop user defined functions using visual basic and use them from within excel.
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

## Assignment 2

Due: **10 May**

Weighting: **25%**

Students are required to complete two assignments as part of the assessment tasks, both of which to be submitted online via the iLearn site.

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. No submission will be accepted after solutions have been posted.

On successful completion you will be able to:

- To learn to use microsoft excel to build the financial models and perform the calculations

to implement these methods.

- Develop an introductory understanding of the “real options approach” to investment appraisal.
- Learn how to develop user defined functions using visual basic and use them from within excel.
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

## Final Examination

Due: **University Examination Period**

Weighting: **50%**

The final examination will be a 2.5 hours open-book written paper with ten minutes reading time, held during the University Examination Period.

On successful completion you will be able to:

- To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of financial models for this purpose.
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods.
- Develop an introductory understanding of the “real options approach” to investment appraisal.
- Learn how to develop user defined functions using visual basic and use them from within excel.
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

## Delivery and Resources

### Classes

For campus students:

- A 2-hour lecture will be held each week.
- A 1-hour tutorial / computer laboratory session will be held each week, commencing on week 2 of the session.

For distance students:

- All lecture and tutorial exercises and solutions will be available on iLearn.

- The timetable for classes can be found on the University web site at: <https://timetables.mq.edu.au/2018/>

## **Required and Recommended Texts and/or Materials Prescribed**

### **Textbooks:**

There is no specific required text for this unit. Detailed lecture materials are provided. However the following books are useful references:

- Capital budgeting: Financial appraisals of investment projects by Dayananda et al (ISBN 0 521 52098 3).
- Financial Modeling by Simon Beninga (ISBN 0 262 02482 9).

### **Technology Used and Required**

You will be required to use the teaching website, Excel and Word.

### **Unit Web Page**

Course material is available on the learning management system (iLearn). To access the teaching website, go to <http://ilearn.mq.edu.au> and login using your usual login and password.

### **Teaching and Learning Activities**

- The unit is taught via lectures, tutorial exercises and the use of spreadsheet software for implementing models and calculations for the purpose of financial decision making.
- Each lecture is self-contained and structured according to the summary provided in the “weekly curriculum” section below. Students are expected to read the relevant lecture notes prior to the lecture, so that they are familiar with the material to be covered. This will greatly enhance your learning experience.
- Dealing with advanced material in our subject area requires a range of generic skills. This unit aims at developing such skills. The lectures and in particular the assignments and tutorial exercises are tailored to enhance critical analysis, problem-solving and creative thinking, comprehension, computing and writing skills.
- You should take the time to work on the problem sets, since they will tend to be similar in nature to the problems you see on the test and exam. Solutions will be provided.
- We cover many examples of financial valuation and decision making problems and how to solve these using spreadsheets. Our approach is one of learning by example and by practising using excel to solve financial decision making problems.

## Unit Schedule

Week	Lecture	Topics
1	1	Basic financial mathematics
2	2	Further topics in financial mathematics. Introduction to capital budgeting.
3	3	Project cashflows and methods for their estimation.
4	4	Elementary methods of forecasting.
5	5	Matrix algebra and implementation in excel.
6	6	Analysis of leasing decisions.
7	7	Project evaluation methods.
mid-semester study break		
mid-semester study break		
8	8	(i) Methods for estimating model parameters, (ii) Sensitivity and breakeven analysis.
9	9	Introduction to options and valuation via the Black Scholes model.
10	10	Monte Carlo simulation modelling for stock prices and option valuation.
11	11	Binomial option pricing methods and implementation in excel.
12	12	Introduction to the real options approach to valuation of projects.
13	13	More on real options analysis.

## 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](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://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](http://ask.mq.edu.au).

## Supplementary exams

Information regarding supplementary exams, including dates, is available at: [http://www.businessandeconomics.mq.edu.au/current\\_students/undergraduate/how\\_do\\_i/special\\_consideration](http://www.businessandeconomics.mq.edu.au/current_students/undergraduate/how_do_i/special_consideration)

## 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

### PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

### Learning outcomes

- To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of financial models for this purpose.
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods.
- Develop an introductory understanding of the “real options approach” to investment appraisal.
- Learn how to develop user defined functions using visual basic and use them from within excel.
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

### Assessment tasks

- Class Test
- Assignment 1
- Assignment 2

- Final Examination

## PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

### Learning outcomes

- To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of financial models for this purpose.
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods.
- Develop an introductory understanding of the “real options approach” to investment appraisal.
- Learn how to develop user defined functions using visual basic and use them from within excel.
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

### Assessment tasks

- Class Test
- Assignment 1
- Assignment 2
- Final Examination

## PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

### Learning outcomes

- To gain an understanding of current established methods for the valuation and appraisal of investment projects, their advantages and disadvantages and the development of

financial models for this purpose.

- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods.
- Develop an introductory understanding of the “real options approach” to investment appraisal.
- Learn how to develop user defined functions using visual basic and use them from within excel.
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

## **Assessment tasks**

- Class Test
- Assignment 1
- Assignment 2
- Final Examination

## **Changes from Previous Offering**

There may be minor changes to the lecture and tutorial materials. The assessment structure is the same as for last year.

## **Research and Practice**

- This unit gives you practice in applying research findings in your assignments.
- This unit gives you opportunities to conduct your own research.