



ACST829

Capital Budgeting and Financial Modelling

S1 Day 2014

Applied Finance and Actuarial Studies

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General Information

Unit convenor and teaching staff Unit Convenor Timothy Kyng timothy.kyng@mq.edu.au Contact via timothy.kyng@mq.edu.au
Credit points 4
Prerequisites 4cp in ACCG or ACST or BUS or ECON or MKTG units at 600 level
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 gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools

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

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.

Assessment Tasks

Name	Weighting	Due
<u>4. Final Examination</u>	50%	Examination period
<u>3. Case Study</u>	10%	Week 12
<u>1. Assignment</u>	20%	Week 7
<u>2. Assignment</u>	20%	Week 11

4. Final Examination

Due: **Examination period**

Weighting: **50%**

Submission

THE EXAM WILL BE CONDUCTED EITHER DURING THE NORMAL EXAMINATION PERIOD OR JUST BEFORE IT. YOU MUST ATTEND AND DO THE EXAM IN THE NORMAL WAY

Extension

IF YOU DON'T ATTEND THE FINAL EXAM YOU WILL FAIL THE UNIT. IF YOU CAN'T ATTEND THE EXAM DUE TO ILLNESS OR MISADVENTURE YOU CAN APPLY FOR SPECIAL CONSIDERATION, BUT YOU MUST PROVIDE SUPPORTING EVIDENCE TO EXPLAIN WHY YOU DIDN'T ATTEND.

Penalties

IF YOU DON'T ATTEND THE FINAL EXAM AND YOU ARE GRANTED SPECIAL CONSIDERATION, YOU MAY HAVE TO SIT A SUPPLEMENTARY EXAM. OTHERWISE YOU WOULD FAIL THE UNIT.

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 gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools
- Develop an introductory understanding of the “real options approach” to investment appraisal
- 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.

3. Case Study

Due: **Week 12**

Weighting: **10%**

Submission

SUBMIT YOUR WORD AND EXCEL FILES ELECTRONICALLY (METHOD TO BE ADVISED)

Extension

No extensions will be granted. Late tasks will be accepted up to 72* hours after the submission deadline. There will be a deduction of 20%* 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 – 40% penalty). This penalty does not apply for cases in which an application for special consideration is made and approved.

On successful completion you will be able to:

- To gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools
- Develop an introductory understanding of the “real options approach” to investment appraisal
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods
- Learn how to properly document a financial decision making problem and its solution using spreadsheet software and communicate the results to interested stakeholders.

1. Assignment

Due: **Week 7**

Weighting: **20%**

Submission

SUBMIT YOUR WORD AND EXCEL FILES ELECTRONICALLY (METHOD TO BE ADVISED)

Extension

No extensions will be granted. Late tasks will be accepted up to 72* hours after the submission deadline. There will be a deduction of 20%* 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 – 40% penalty). This penalty does not apply for cases in which an application for special consideration is made and approved.

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 gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods

2. Assignment

Due: **Week 11**

Weighting: **20%**

Submission

SUBMIT YOUR WORD AND EXCEL FILES ELECTRONICALLY (METHOD TO BE ADVISED)

Extension

No extensions will be granted. Late tasks will be accepted up to 72* hours after the submission deadline. There will be a deduction of 20%* 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 – 40% penalty). This penalty does not apply for cases in which an application for special consideration is made and approved.

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 gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools
- To learn to use microsoft excel to build the financial models and perform the calculations to implement these methods

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.

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: <http://www.timetables.mq.edu.au/>

Required and Recommended Texts and/or Materials Prescribed

Textbooks:

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

- Capital budgeting: by Dayananda et al (ISBN 0 521 52098 3)
- Financial Modelling: by Simon Beninga (ISBN 0 262 02482 9)
- For the novice excel user, the book Teach Yourself Visually Excel 2003 by Maran (ISBN 0-7645-3996-5) is a good way to quickly learn the basics of excel assumed for this unit.

The recommended texts are not available from the Macquarie University Co-op Bookshop.

The recommended texts are not available in the Macquarie Library.

Technology Used and Required

- Students will require access to the internet to download lecture slides and tutorial solutions.
- The assignment and most tutorial exercises will require the use of word processing and/

or spreadsheet programs.

- In most weeks we will be using excel spreadsheets for the various financial calculations needed. Our classes are held in a computer laboratory and all students will have access to a computer with the required software installed on it.
- Students will be instructed in how to use excel for the purposes of the unit.

Unit Web Page

Course material is available on the learning management system (iLearn)

The web page for this unit can be found at: [URL to be advised]

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 practicing using excel to solve financial decision making problems.

Changes since last offering

- There have been no changes to this unit since the last offering in 2013

Unit Schedule

Date	Topic
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Week 1	<p>(1) Basic Financial mathematics: Interest rates, present value, future value, annuities, perpetuities, bonds;</p> <p>(2) Introduction to excel</p>
Week 2	<p>(1) Introduction to capital budgeting.</p> <p>(2) Further topics in financial mathematics: Present value and future value under varying interest rates, loans and leases, loan repayment schedules</p>
Week 3	<p>(1) Project cashflows and methods for their estimation.</p> <p>(2) Examples of asset expansion, retirement and replacement projects</p>
Week 4	<p>(1) Elementary methods of forecasting.</p> <p>(2) Matrix algebra and implementation in excel</p>
Week 5	<p>(1) Analysis of leasing decisions, lease vs buy,</p> <p>(2) leveraged leases and their analysis using alternative measures of return.</p>
Week 6	<p>(1) Project evaluation methods: npv, irr, pp, arr. Application to asset replacement, retirement and expansion projects.</p> <p>(2) Methods for choosing the discount rate for npv analysis.</p>
Mid term break	14 April – 25 April
Week 7	<p>(1) Project evaluation methods: npv, irr, pp, arr. Application to asset replacement, retirement and expansion projects.</p> <p>(2) Methods for choosing the discount rate for npv analysis.</p>
Week 8	<p>(1) Methods for estimating model parameters</p> <p>(2) Sensitivity and breakeven analysis: implementation in excel</p>
Week 9	<p>(1) Introduction to options and valuation via the black scholes model,</p> <p>(2) monte carlo simulation modelling for stock prices and option valuation</p>
Week 10	Binomial option pricing methods and implementation in excel
Week 11	The flaws in the traditional methods of investment appraisal and introduction to the real options approach to valuation of projects with flexibility

Week 12	More on real options analysis: parameter estimation, embedded exotic options, application of exotic option valuation theory to real options examples
Week 13	Revision / case studies

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

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

Disruption to Studies Policy 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/

Supplementary Exams Policy

http://www.businessandconomics.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) 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

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

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

Assessment tasks

- 4. Final Examination

- 3. Case Study
- 1. Assignment
- 2. Assignment

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 gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools
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- 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

- 4. Final Examination
- 3. Case Study
- 1. Assignment
- 2. Assignment

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 gain an understanding of how to implement financial mathematics in an excel spreadsheet and to become adept in using some of excel's built in financial and statistical functions and other useful tools
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Assessment tasks

- 4. Final Examination
- 3. Case Study
- 1. Assignment
- 2. Assignment

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcome

- 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

- 4. Final Examination
- 3. Case Study
- 1. Assignment

- 2. Assignment

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