ECFS867

Financial Instruments

AFC Term 1 MB 2015

Dept of Applied Finance and Actuarial Studies

Contents

General Information

Unit convenor and teaching staff
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Co Unit Convenor
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Credit points
4

Prerequisites
Admission to MAppFin or PGCertAppFin or GradDipAppFin

Corequisites
AFCP801 or ECFS865

Co-badged status

Unit description
This unit covers the structure, pricing and usage of various financial instruments, including spot, forward, swaps and option contracts for equity, debt, foreign exchange and commodity markets. This unit is concerned with understanding how these financial instruments work, how they are used by end users for speculation and risk management, how they are priced and valued, and how market makers manage their risks when they trade these financial instruments.

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:

Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.

Explain how various financial instruments are traded in the financial markets and used in the real world.
Demonstrate how the payoffs of a financial instrument can be replicated by combining other financial instruments.
Apply the principles of law of one price and no arbitrage pricing to the pricing and valuation of financial instruments.
Analyse the risks in financial instruments and create appropriate hedging strategies to manage financial risk.
Explain the differences between various financial instruments, such as forwards, futures, swaps and options, and assess the implications of these differences for the users of financial instruments.

General Assessment Information

To pass this unit (requires a Standardised Numerical Grade of 50 or better) the student must pass the combined examinations component of the assessment.

Assessment Tasks

Name	Weighting	Due
Case Study	20%	Refer to iLearn
Mid-semester Exam	20%	Refer to Timetable
Final Exam	60%	Refer to Timetable

Case Study

Due: **Refer to iLearn**
Weighting: **20%**

Summary of Assessment Task

Individual / Group: Individual

Due Date: Refer to the Unit's iLearn site

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section

Submission Method: Online via the Unit's iLearn site

Duration: Refer to Assignment Coversheet

Extension Requests:

- If you have extenuating circumstances that prevent you from submitting your assignment

by the due date, please make arrangements with your lecturer prior to the due date.
- Unless prior arrangements have been made, any late submission of assignments will automatically be penalised. In the absence of special circumstances, a zero mark will apply.

Other Information: Case study questions and data will be placed on the unit's iLearn site.

On successful completion you will be able to:
- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in the real world.
- Demonstrate how the payoffs of a financial instrument can be replicated by combining other financial instruments.
- Apply the principles of law of one price and no arbitrage pricing to the pricing and valuation of financial instruments.
- Analyse the risks in financial instruments and create appropriate hedging strategies to manage financial risk.
- Explain the differences between various financial instruments, such as forwards, futures, swaps and options, and assess the implications of these differences for the users of financial instruments.

Mid-semester Exam

Due: **Refer to Timetable**
Weighting: **20%**

Summary of Assessment Task

Individual / Group: Individual

Due Date: Refer to Timetable.

Assessments: Different Class Groups have different deadlines. Students should find the timetable and dates relevant to their group at www.mafc.mq.edu.au

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section

Submission Method: As per MAFC Program Rules & Procedures at www.mafc.mq.edu.au

Duration: 2 hours plus 10 minutes reading time

Examination Conditions:

- All examinations are closed book. However, permitted materials and aids are:
    - A study sheet, prepared by the student (one double-sided A4 page), to be advised by the lecturer prior to the Exam.
    - Calculators. Permitted calculators are noted under 'Calculators' below.
- Exam times and locations are noted in the unit timetable at www.mafc.mq.edu.au.
- Refer to MAFC Program Rules & Procedures at www.mafc.mq.edu.au.

Extension Requests:

- You are expected to present yourself for examination at the time and place designated in the relevant MAFC Timetable at www.mafc.mq.edu.au.
- Deferral of an examination is not permitted, unless special consideration has been approved by the Director of Studies under the University's Disruption to Studies Policy.
- Refer to MAFC Program Rules & Procedures at www.mafc.mq.edu.au for information on the University's Disruption to Studies Policy or non-attendance at an examination.

On successful completion you will be able to:

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in the real world.
- Demonstrate how the payoffs of a financial instrument can be replicated by combining other financial instruments.
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- Explain the differences between various financial instruments, such as forwards, futures, swaps and options, and assess the implications of these differences for the users of financial instruments.

Final Exam

Due: **Refer to Timetable**
Weighting: **60%**

Summary of Assessment Task

Individual / Group: Individual

Due Date: Refer to Timetable.

Assessments: Different Class Groups have different deadlines. Students should find the timetable and dates relevant to their group at www.mafc.mq.edu.au

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section

Submission Method: As per MAFC Program Rules & Procedures at www.mafc.mq.edu.au

Duration: 3 hours plus 10 minutes reading time

Examination Conditions:

- All examinations are closed book. However, permitted materials and aids are:
    - A study sheet, prepared by the student (one double-sided A4 page), to be advised by the lecturer prior to the Exam.
    - Calculators. Permitted calculators are noted under ‘Calculators’ below.
- Exam times and locations are noted in the unit timetable at www.mafc.mq.edu.au.
- Refer to MAFC Program Rules & Procedures at www.mafc.mq.edu.au.

Extension Requests:

- You are expected to present yourself for examination at the time and place designated in the relevant MAFC Timetable at www.mafc.mq.edu.au.
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On successful completion you will be able to:

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
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- Explain the differences between various financial instruments, such as forwards, futures,

swaps and options, and assess the implications of these differences for the users of financial instruments.

Delivery and Resources

CLASSES

Face-to-Face Teaching: Generally 40 hours

Timetable: Detailed timetable for classes are on the Centre's web site www.mafc.mq.edu.au

Class Changes:

Students will only be permitted to change classes if authorised by the Applied Finance Centre.

Request for changes must be made:

- By completion of a Change of Unit Form, available on the Centre's web site at www.mafc.mq.edu.au; or
- In person by going to reception at the relevant Applied Finance Centre location.

Consultation Times:

Students who wish to contact any of the teaching staff may do so through:

- The Unit's iLearn site, in relation to general queries (so that all students may benefit); or
- Individual consultation with the lecturer by email in the first instance, if necessary.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

Text: Notes will refer to the McDonald, Robert L. Derivatives MARKETS (3rd edition). Pearson Education/ Prentice Hall, Upper Saddle River, New Jersey 2013. A lower cost version is available, PNIE ISBN 9781292021256.

Additional Readings:

- Additional readings are included in the Unit notes.
- These readings are examinable.

Lecture Notes: Available in printed form and electronically via iLearn.

Study Problems: Students are required to work systematically through suggested problem sets. These problems will not be collected but they will help you prepare for the exams. Answers to the problems will be posted on the Unit's iLearn site.

Pre-Unit Materials: Information papers on statistics, regression, accounting and other material may be found at http://mafcstudents.mq.edu.au/new-to-mafc/pre-course-materials/. Students should work through this material prior to commencing the degree. The material will remain a useful reference as students progress through the program.

Useful References:

- Bodie, Kane and Marcus, Investments, McGraw Hill, 9th edition, 2011
- Hull, Fundamentals of Futures and Options Markets, Pearson Education/Prentice Hall, 8th edition 2013
- McDonald, Fundamentals of Derivatives Markets, Prentice-Hall, 2009

Calculators:

- A financial calculator that can handle time value of money calculations, logs and power functions is required.
- The Hewlett Packard calculator hp17bII+ is recommended.
- In examinations, hand held calculators are permitted. Mobile phones and computers are not permitted.

Assumed Knowledge: Mathematical content

- Finance has a high level of numerate content. Consequently this unit is, in parts, mathematical and arithmetical. As an indication of the level of algebra required, students should find the following problem easy to solve:

Solve for Z_5:$1,000 = $681.20(1+$Z_5$/2)^{10}

- Occasionally the unit dips into the differential calculus. As an indication of the level of calculus required, students should be able to interpret the following equation:

$$D = - ((1+y) / P) (\Delta P/\Delta y)$$

- Students should look at the Web link below to obtain notes on the minimum mathematical and statistical knowledge required to undertake the Master of Applied Finance degree: http://mafcstudents.mq.edu.au/new-to-mafc/pre-course-materials/

Assumed Access:

- Access to a computer with word processing and spreadsheet capability is assumed, as is general student computer literacy. In particular, students should be comfortable to open a blank spreadsheet and code formulae into cells in order to make that spreadsheet do something useful. Students who find this daunting will struggle with the Case Studies.
- Also assumed, is access to a Web browser (for example, Safari, Internet Explorer or Firefox) and email software and a student's own connection to an internet service provider.

TECHNOLOGY USED AND REQUIRED

Unit iLearn Site:

- Found by logging on to iLearn ilearn.mq.edu.au, then clicking on ***Financial Instruments***.
- This is where you will find forums, downloadable resources and links to important pages.
- The forum allows you to communicate with other students and lecturer(s) and may provide supplementary material.
- You are requested to post your questions on the forums at least 24 hours prior to the assignment submission date or the examination date. Questions posted after that time may not be answered. **Please try to not leave your questions to the last few days.**

Important Notice:

- It is important that you familiarize yourself with the Unit's iLearn site.
- Students should check the Unit's iLearn site regularly (minimum twice a week and prior to all lectures) and look for updates and distribution of materials (including case studies) related to the unit or assessments and, if relevant, participate in forum discussions.

Unit Schedule

PART 1

0. THE TIME VALUE OF MONEY (PRE-COURSE READING)

Topics:

- Money has time value
- Setting up the cash flows and the time line in the calculator
- Valuing a single cash flow
- Valuing a stream of cash flows
- Different compounding periods

Readings:

- McDonald Appendix B

1. INTRODUCTION TO FINANCIAL INSTRUMENTS (1 SESSION)

Topics:

- What is a financial instrument?
- An overview of financial markets
- Buying and short selling financial instruments
- Law of one price and no arbitrage

Readings:

- McDonald Chapter 1

2. INTRODUCTION TO FORWARDS, FUTURES AND OPTIONS (2 SESSIONS)

Topics:

- Forward contracts
- Futures contracts
- Option contracts

Readings:

- McDonald Chapter 2, 3, 5.4
- Sundaram and Das, Derivatives: Principles and practice, pages 189-192 (attached)

3. FINANCIAL RISK MANAGEMENT (2 SESSION)

Topics:

- Hedging strategies using forwards and options
- Hedging strategies using futures
- Why do firms hedge?

Readings:

- McDonald Chapter 4
- Hull, *Fundamentals of Futures and Options Markets*, pages 47-61 (attached)
- McDonald, *Fundamentals of derivatives markets*, pages 114-119 (attached)
- Stulz, *Rethinking risk management* (attached)
- Sundaram and Das, *Derivatives: Principles and practice,* pages 42-45 (attached)

4. FINANCIAL AND COMMODITY FORWARDS AND FUTURES (2 SESSIONS)

Topics:

- A framework for pricing forwards
- Futures contracts
- Currency contracts
- Commodity contracts

Readings:

- McDonald Chapter 5.1-5.6
- McDonald, *Fundamentals of derivatives markets*, pages 164-181 (attached)
- Sundaram and Das, *Derivatives: Principles and practice*, pages 46-53 (attached)

PART 2

5. INTEREST RATE FORWARDS AND FUTURES (2 SESSIONS)

Topics:

- Bonds
- Interest rate sensitivity
- Forward rate agreements and short term interest rate futures
- Bond futures
- Repurchase agreements

Readings:

- McDonald Chapter 5.7, 7
- Whaley, Derivatives: Markets, *valuation and risk management*, pages 666-669 (attached)

6. SWAPS (2 SESSIONS)

Topics:

- Introduction to swaps
- Interest rate swaps
- Currency swaps
- Total rate of return swaps
- Swaptions

Readings:

- McDonald Chapter 8
- Sundaram and Das, *Derivatives: Principles and practice*, pages 589-593 (attached)

7. OPTION PRICING (2 SESSIONS)

Topics:

- Put-call parity
- Properties of option prices
- Pricing options using the binomial model
- Pricing options using the Black-Scholes model

Readings:

- McDonald Chapter 9, 10, 12.1
- Chance, Essays in derivatives, Essay 16 (attached)

- Chance, Essays in derivatives, Essay 31 (attached)

Learning and Teaching Activities

Strategy

The Master of Applied Finance degree adopts a deep teaching and learning strategy, in which Students acquire and retain knowledge and also are able to make sense of the issues and concepts and apply them in the “real world”. The degree relies heavily on student engagement and participation by: (a) Continuous learning throughout the semester. This is encouraged through a combination of students undertaking prescribed reading throughout the units and / or completion of practice problems, case studies, assignments, class presentations etc and interaction via forums in the unit’s iLearn site; and (b) Assessments, which enable the student to demonstrate his / her understanding of the learning objectives achieved through the continuous learning.

Student Participation

Students participate in this unit by: (a) Attending lectures and participating in class discussion; (b) Before each class, completing the recommended readings of notes and text, and working systematically through suggested problem sets; (c) Interacting on the unit’s iLearn site; and (d) Completing all assessment tasks and exams. On average the unit will require students to complete, for every hour of class time, approximately 3 hours private study.

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/

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.

Students should also consult the MAFC Program Rules & Procedures found at http://www.mafc.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) 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 (MAFC-specific)

For all student enquires, please contact studentsupport@mafc.mq.edu.au

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.

Learning Skills

Learning Skills (http://www.students.mq.edu.au/support/learning_skills/) 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 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 - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in the real world.
- Demonstrate how the payoffs of a financial instrument can be replicated by combining other financial instruments.
- Apply the principles of law of one price and no arbitrage pricing to the pricing and valuation of financial instruments.
- Analyse the risks in financial instruments and create appropriate hedging strategies to manage financial risk.
- Explain the differences between various financial instruments, such as forwards, futures, swaps and options, and assess the implications of these differences for the users of financial instruments.

Assessment tasks

- Case Study
- Mid-semester Exam
- Final Exam

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

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
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Assessment tasks

- Case Study
- Mid-semester Exam
- Final Exam

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

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in

the real world.
- Demonstrate how the payoffs of a financial instrument can be replicated by combining other financial instruments.
- Apply the principles of law of one price and no arbitrage pricing to the pricing and valuation of financial instruments.
- Analyse the risks in financial instruments and create appropriate hedging strategies to manage financial risk.
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Assessment tasks

- Case Study
- Mid-semester Exam
- Final Exam

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

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in the real world.
- Demonstrate how the payoffs of a financial instrument can be replicated by combining other financial instruments.
- Apply the principles of law of one price and no arbitrage pricing to the pricing and valuation of financial instruments.
- Analyse the risks in financial instruments and create appropriate hedging strategies to manage financial risk.
- Explain the differences between various financial instruments, such as forwards, futures, swaps and options, and assess the implications of these differences for the users of

financial instruments.

Assessment tasks

- Case Study
- Mid-semester Exam
- Final Exam

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 outcomes

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in the real world.
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Assessment tasks

- Case Study
- Mid-semester Exam
- Final Exam

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able

to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Recognise that a financial instrument is a claim on future cash flows and demonstrate that the value of a financial instrument is the present value of its expected future cash flows.
- Explain how various financial instruments are traded in the financial markets and used in the real world.
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Assessment tasks

- Case Study
- Mid-semester Exam
- Final Exam

Changes from Previous Offering

The Academic Policies section of this Unit Guide was updated March 2014.

The Extension Requests section of this Unit Guide was updated June 2014.

Important Notice

This Unit Guide may be subject to change. The latest version is on the Centre's web site www.mafc.mq.edu.au.

Students should read the Unit Guide carefully at the start of semester. It contains important information about the unit. If anything is unclear, please consult one of the unit lecturers.

Standards Required to Complete the Unit Satisfactorily

University Policy on Grading:

- Macquarie University's Academic Senate has established a Grading Policy available at http://www.mq.edu.au/policy/docs/grading/policy.html. Your final result will include:
    - A grade ranging from Fail to High Distinction; and
    - A Standardised Numerical Grade (SNG). A SNG is not a summation of the individual assessment components, but is allocated on the basis of the performance in all assessment items, providing the examination component is passed.
- It is important to note:
    - The Policy does not require that a minimum or maximum number of students are to be failed in any unit;
    - Grades will not be allocated to fit a predetermined distribution; and
    - The process of allocating SNGs does not change the rank order of marks among students who pass the unit.

Specific Unit Grading:

- To pass this unit (ie requires a Standardised Numerical Grade of 50 or better), the student must pass the combined examinations component of the assessment.
- All final grades in the Applied Finance Centre are determined by a grading committee and are not the sole responsibility of the unit convenor.
- The core criteria used to assess student work in this unit are:
    - Knowledge and understanding: Understanding key ideas, knowledge and use of concepts.
    - Application: Ability to apply theoretical ideas and frameworks in practice and in a critically reflective way.
    - Reasoning and analysis: Ability to analyse, use critical reasoning and principles to formulate a position, balancing theory and personal reflection.
    - Professional literacy and research: Understanding of professional factors (language and landscape) and ability to undertake appropriate research.
    - Communication and presentation: Ability to communicate and present effectively (written and oral, as relevant).
    - Use of mathematical and statistical ideas: Ability to use mathematical and statistical ideas, methods and formulae appropriately.

- Performance in relation to each of these criteria are assessed against the University's grading descriptors:

Grade	Expectation
High Distinction	Provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.
Distinction	Provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.
Credit	Provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent justification; communication of ideas fluently and clearly in terms of the conventions of the discipline.
Pass	Provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.
Fail	Does not provide evidence of attainment of learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.

Review of Grade and final examination Script viewing:

- A student who has been awarded a final grade for a unit and who does not believe it is an accurate reflection of their performance, and has grounds for such a claim and can demonstrate those grounds, may apply to have their grade reviewed.
- For information on requesting a review of grade and/or viewing your final exam script, please refer to the University's Grade Appeal Policy at http://www.mq.edu.au/policy/docs/gradeappeal/policy.html and MAFC Program Rules & Procedures at http://www.mafc.mq.edu.au.

Changes since First Published

Date	Description
17/12/2014	Contact updated
09/12/2014	Contact updated