



# AFIN3029

## Derivative Instruments

Session 1, Online-scheduled-In person assessment, North Ryde 2024

*Department of Applied Finance*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff Shane Magee <a href="mailto:shane.magee@mq.edu.au">shane.magee@mq.edu.au</a>
Credit points 10
Prerequisites 20cp at 2000 level including ((AFIN252 or AFIN2050) and (AFIN270 or AFIN2070 or STAT272 or STAT2372))
Corequisites
Co-badged status
Unit description This unit explores the characteristics and pricing of derivatives. The importance of the principles of hedging and arbitrage in derivative pricing, is considered. Derivatives investigated include forwards, futures, options and various structured products. In particular, the unit covers non-standard securities and numerical methods.

## 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:

- ULO1:** Examine the concepts of option pricing theory and the role of derivatives.
- ULO2:** Apply financial derivatives such as forward/futures and options to solve quantitative problems.
- ULO3:** Develop skills to price options and other derivatives.
- ULO4:** Examine the principles of hedging, arbitrage theory and structured products.

## General Assessment Information

### Late Assessment Submission Penalty (written assessments)

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the

assessment is submitted. Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submissions of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for [Special Consideration](#).

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Quizzes</a>	20%	No	Week 7 and Week 12
<a href="#">Assignment</a>	30%	No	Week 10
<a href="#">Final Examination</a>	50%	No	University Examination Period

### Quizzes

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week 7 and Week 12**

Weighting: **20%**

There are two online quizzes during the session, each worth 10%

On successful completion you will be able to:

- Examine the concepts of option pricing theory and the role of derivatives.
- Develop skills to price options and other derivatives.
- Examine the principles of hedging, arbitrage theory and structured products.

### Assignment

Assessment Type <sup>1</sup>: Quantitative analysis task

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **Week 10**

Weighting: **30%**

The assignment will involve the analysis of a financial scenario or problem

On successful completion you will be able to:

- Examine the concepts of option pricing theory and the role of derivatives.
- Apply financial derivatives such as forward/futures and options to solve quantitative problems.
- Develop skills to price options and other derivatives.
- Examine the principles of hedging, arbitrage theory and structured products.

## Final Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **University Examination Period**

Weighting: **50%**

A two hour final exam will be held during the University Examination Period.

On successful completion you will be able to:

- Examine the concepts of option pricing theory and the role of derivatives.
- Apply financial derivatives such as forward/futures and options to solve quantitative problems.
- Develop skills to price options and other derivatives.
- Examine the principles of hedging, arbitrage theory and structured products.

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

### Required Text

Hull, J., Treepongkaruna, S., Heaney, R., Pitt, D., and Colwell, D. (2014) Fundamentals of Futures and Options Markets, 1st edition, Pearson

### Learning and Teaching Activities

The content for each week will comprise a lecture and a set of tutorial questions.

Students will need to register for a tutorial. Tutorials are considered compulsory but no marks are allocated. The tutorial schedule will be made available on iLearn. Tutorial enrolment or change of tutorial can be made through eStudent in the first two weeks of the session. **No tutorial changes are allowed after Week 2.** Students should attend their allocated tutorial, but exceptions may occur on a one-off basis. That is, where circumstances prevent you from attending your own tutorial in a given week, you may attend an alternative tutorial if room is available. Students are expected to complete the 'Tutorial Questions' as a self-directed study activity before attending a tutorial. Additional learning support will be available in tutor consultation times.

## Unit Schedule

Week	Topic
1	Introduction to derivatives and mechanics of futures markets
2	Hedging strategies using futures
3	Interest rates
4	Determination of forward and futures prices
5	Interest rate futures
6	Swaps
7	Mechanics of option markets and properties of option prices
8	Trading strategies involving options
9	Introduction to binomial trees
10	Valuing stock options: The Black-Scholes-Merton model
11	Options on stock indices, currencies and futures
12	The Greek letters
13	Revision

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). 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](#)
- [Assessment Procedure](#)

- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies](https://students.mq.edu.au/support/study/policies) (<https://students.mq.edu.au/support/study/policies>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## 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.

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Unit information based on version 2024.02 of the [Handbook](#)