

Unit Description Template

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| Unit code | MA50196 |
| Unit title | Financial Derivatives |
| Unit provider | Department of Mathematical Sciences |
| Teaching provider | Department of Mathematical Sciences |
| Aims | To provide an introduction to derivative securities including futures and options, their valuation and management. |
| Learning Outcomes | At the end of this course, students should be able to: describe the outcomes of portfolios including a variety of financial instruments; apply principles of arbitrage, hedging and risk management; demonstrate appreciation of aspects of the derivation of the Black-Scholes pricing theory, and perform simple calculations based on the Black-Scholes analysis. |
| Skills | Written communication (T/F/A), Numeracy (T/F/A), Time management and Organisational skills (F), Data acquisition, handling and analysis (F), Problem solving (T/F/A), Working independently (F), Critical/analytical skills (F), Precise thinking (T/F/A), Accuracy and attention to detail (T/F/A). |
| Content | Introduction to derivatives, including futures and forward contracts, call and put options. Valuation of futures and forwards contracts. Time value of money, interest rates, bonds. Option pricing; put-call parity, trading strategies, arbitrage. Random asset price modelling. Introduction to the Black-Scholes analysis for pricing derivatives, including options. Other topics to be chosen from: interest rate swaps and their valuation, assets paying dividends, the binomial pricing model, risk management of options (delta, theta and gamma). |
| Credits | 6 |
| Level | M |
| Total study hours | 100 |
| Year of Programme & Semester in which offered | Postgraduate Masters |
| When available | 2005/6 |
| Location of study | Claverton Down Campus |
| Contact person | Professor M D Penrose |
| Availability | Maximum 100 students |

Relationship to other units (irrespective of programme of study)

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| Pre-requisites | A good degree with a significant mathematical content |
| Co-requisites | None. |
| Post-requisites | None |
| Forbidden combinations | None |

Assessment (lengths and weightings)

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| 1. Assessed coursework | |
| 2. Practical classes | |
| 3. Written examinations | 1 x 2 hours 100% |
| 4. Oral examinations | |
| 5. Other (please specify) | |

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| Date of approval | |
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Taught contact time (per student): *This section will be used as a request for timetabling and only needs to be completed for NEW units.*

| | Please indicate hours per session, sessions per week & Semester Week Nos | Staff member who will teach | Size of group |
|---|---|--|----------------------|
| 6. Lectures | 2 hours per week, weeks 1 – 11 | Prof. M.D. Penrose | 100 |
| 7. Seminars/Tutorials/ Workshops | 1 hour per week, weeks 1 - 11 | Prof. M.D. Penrose | 100 |
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| 8. Practical classes (labs, computers, language, etc.) | | | |
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| 9. Field courses | | | |
| 10. Other (please specify) | | | |
| Private study time (estimate of time and indication of how it might be used) | 67 hours spent studying lecture notes and working on set practical exercises | | |
| Any special facilities required: | | | |
| Shared teaching | | | |