

Unit Description Template

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)

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

Assessment (lengths and weightings)

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

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/Tutorial s/	1 hour per week, weeks 1 - 11	Prof. M.D. Penrose	100
Workshops			
8. Practical classes (labs, computers, language, etc.)			
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			