

H9DRM: Derivatives and Risk Management

Module Code:	H9DRM
Long Title	Derivatives and Risk Management APPROVED
Title	Derivatives and Risk Management
Module Level:	LEVEL 9
EQF Level:	7
EHEA Level:	Second Cycle
Credits:	10
Module Coordinator:	CORINA SHEERIN
Module Author:	JULIA REYNOLDS
Departments:	School of Business
Specifications of the qualifications and experience required of staff	
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Demonstrate an advanced comprehension of the techniques used in the valuation of derivatives and the quantification of risk.
LO2	Critically evaluate contemporary academic and industry literature regarding derivative pricing models with particular emphasis on the deficiencies of models and their application in complex scenarios.
LO3	Select, categorise and appraise the risk management characteristics of each type of derivative studied, explaining how the derivatives may be hedged themselves or used for the hedging of real world risk management problems.
LO4	Develop a framework to categorise and evaluate various portfolio risk measurement techniques and demonstrate a knowledge of the current theoretical and applied knowledge regarding their limitations
Dependencies	
Module Recommendations	
No recommendations listed	
Co-requisite Modules	
No Co-requisite modules listed	
Entry requirements	There are no additional entry requirements for this module. The programme entry requirements apply.

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Module Content & Assessment			
Indicative Content			
Derivatives and Future Markets Forward contracts, Futures contracts, Options. Specification of a futures contract, Convergence of futures price to spot price, The operation of margin accounts. Forward vs. futures contracts.			
Hedging strategies using futures Basic principles, Arguments for and against, Basis risk, Cross hedging, Stock index futures, Stack and roll.			
Determination of forward and futures prices Investment assets vs. consumption assets, Short selling, Assumptions and notation, Forward price for an investment asset, Known income, Known yield, Valuing forward contracts, Are forward prices and futures prices equal?, Futures prices of stock indices, Forward and futures contracts on currencies, Futures on commodities, The cost of carry, Delivery options, Futures prices and expected future spot prices.			
Swaps Mechanics of interest rate swaps, Valuation of interest rate swaps, Credit risk, Credit default swaps Mechanics of options markets Types of options, Option positions, Underlying assets, Specification of stock options, Trading, Commissions, Margin requirements.			
Properties of stock options Factors affecting option prices, Assumptions and notation, Upper and lower bounds for option prices, Put–call parity, Calls on a non-dividend-paying stock, Puts on a non-dividend-paying stock, Effect of dividends.			
Trading strategies involving options Naked options, Hedges, Spreads, Combinations			
Binomial trees A one-step binomial model and a no-arbitrage argument, Risk-neutral valuation, Two-step binomial trees, A put example, American options, Delta, Matching volatility with u and d, The binomial tree formulas, Increasing the number of steps.			
The Black–Scholes–Merton model Lognormal property of stock prices, The distribution of the rate of return, The expected return, Volatility, The idea underlying the Black–Scholes–Merton differential equation, Derivation of the Black–Scholes–Merton differential equation, Risk-neutral valuation, Black–Scholes–Merton pricing formulas.			
Value at risk and expected shortfall The VaR and ES measures, Historical simulation, Model-building approach, The linear model, The quadratic model, Monte Carlo simulation, Comparison of approaches, Back testing, Principal components analysis			
Assessment Breakdown			%
Coursework			40.00%
End of Module Assessment			60.00%
Assessments			
Full Time			
Coursework			
Assessment Type:	Continuous Assessment	% of total:	40
Assessment Date:	n/a	Outcome addressed:	1,3
Non-Marked:	No		
Assessment Description: Candidates are required to complete one in-class test, which is a mix of theoretical and problem-based questions. The in-class examination will be worth 40%			
End of Module Assessment			
Assessment Type:	Terminal Exam	% of total:	60
Assessment Date:	End-of-Semester	Outcome addressed:	1,2,3,4
Non-Marked:	No		
Assessment Description: Final Examination, which will consist of an Excel-based exam.			
No Workplace Assessment			
Reassessment Requirement			
Repeat examination <i>Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.</i>			
Reassessment Description Repeat assessment of this module will consist of a repeat examination which will test all the learning outcomes.			

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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	Classroom and demonstrations	36	Per Semester	3.00
Directed Learning	Directed e-learning	36	Per Semester	3.00
Independent Learning	Independent learning	178	Per Semester	14.83
Total Weekly Contact Hours				6.00

Module Resources	
<i>Recommended Book Resources</i>	
Hull J. C. (2018), Options, Futures and Other Derivatives, 10th Ed. Pearson Prentice Hall.	
<i>Supplementary Book Resources</i>	
Hull, J. C. (2018), Risk Management and Financial Institutions, 5th Ed. Wiley.	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	