ACTL90003 Mathematics of Finance III

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: A 2 hour seminar and a 1 hour workshop per week Total Time Commitment: Estimated total time commitment of 120 hours per semester
Prerequisites:	ACTL90001 Mathematics of Finance I

Subject	Study Period Commencement:	Credit Points:
ACTL90001 Mathematics of Finance I	Semester 1	12.50

Corequisites:	None
Recommended Background Knowledge:	Students should be competent in the use of Excel.
Non Allowed Subjects:	ACTL40004 Advanced Financial Mathematics I

Subject	Study Period Commencement:	Credit Points:
ACTL40004 Advanced Financial Mathematics I	Semester 1	12.50

Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry.The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Prof Mark Joshi
Contact:	Graduate School of Business and Economics Level 4, 198 Berkeley Street Telephone: +61 3 8344 1670 **Online Enquiries (https://nexus.unimelb.edu.au/OnlineEnquiryForm.aspx?campaigncode=CMP-01311-VZ8293&cssurl=https://nexus.unimelb.edu.au/cssfiles/gsbe.css&redirecturl=http://www.gsbe.unimelb.edu.au/contactus/nexus/gsbe.html)** Web: **www.gsbe.unimelb.edu.au (http://www.gsbe.unimelb.edu.au/)**
Subject Overview:	The binomial model; risk-neutral pricing of derivative securities; introduction to Ito's formula and SDEs; stochastic asset models; Black-Scholes model; arbitrage and hedging; interest-rate models; actuarial applications.
Objectives:	On successful completion of this subject a student should be able to: # Demonstrate a knowledge of the properties of option prices, valuation methods and hedging techniques, and be able to apply these; # Show how to use binomial trees and lattices in valuing options; # Apply the Ito calculus; # Derive option prices under the Black-Scholes model;

	# Describe and apply in simple models, including the binomial model and the Black-Scholes model, the approach to pricing using deflators and demonstrate its equivalence to the risk-neutral pricing approach; # Demonstrate a knowledge of models of the term structure of interest rates; # Describe, as a computational tool, the risk-neutral approach to the pricing of zero coupon bonds and interest-rate derivatives for a general one-factor diffusion model for the risk-free rate of interest; # Demonstrate a knowledge of simple models for credit risk.
Assessment:	An assignment of up to 1,000 words (10%)One hour mid-semester test (20%) Two hour end of semester exam (70%)
Prescribed Texts:	You will be advised of prescribed texts by your lecturer.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	High level of development: # Written communication; # Problem solving; # Statistical reasoning; # Application of theory to practice; # Interpretation and analysis.
Related Course(s):	Master of Actuarial Science Postgraduate Diploma in Actuarial Science