

# ACTL40004 Advanced Financial Mathematics I

<b>Credit Points:</b>	12.50									
<b>Level:</b>	4 (Undergraduate)									
<b>Dates &amp; Locations:</b>	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.									
<b>Time Commitment:</b>	Contact Hours: Three hours of lectures and/or tutorials per week Total Time Commitment: Not available									
<b>Prerequisites:</b>	Both of: <table border="1" data-bbox="387 544 1484 750"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ACTL30006 Financial Mathematics III</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>ACTL30005 Models for Insurance and Finance</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ACTL30006 Financial Mathematics III	Semester 1	12.50	ACTL30005 Models for Insurance and Finance	Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:								
ACTL30006 Financial Mathematics III	Semester 1	12.50								
ACTL30005 Models for Insurance and Finance	Semester 2	12.50								
<b>Corequisites:</b>	None									
<b>Recommended Background Knowledge:</b>	Please refer to Prerequisites and Corequisites.									
<b>Non Allowed Subjects:</b>	None									
<b>Core Participation Requirements:</b>	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: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>									
<b>Coordinator:</b>	Prof Daniel Dufresne									
<b>Contact:</b>	<a href="mailto:dufresne@unimelb.edu.au">dufresne@unimelb.edu.au</a> ( <a href="mailto:dufresne@unimelb.edu.au">mailto:dufresne@unimelb.edu.au</a> )									
<b>Subject Overview:</b>	The binomial model; risk-neutral pricing of derivative securities; Brownian motion; introduction to Itô's formula and SDEs; stochastic asset models; Black-Scholes model; arbitrage and hedging; interest-rate models; actuarial applications (eg. maturity guarantees, SPDAs).									
<b>Objectives:</b>	<ul style="list-style-type: none"> <li># The binomial model;</li> <li># Risk-neutral pricing of derivative securities;</li> <li># Brownian motion;</li> <li># Introduction to Itô's formula and SDEs;</li> <li># Stochastic asset models;</li> <li># Black-Scholes model;</li> <li># Arbitrage and hedging;</li> <li># Interest-rate models;</li> <li># Actuarial applications (e.g. maturity guarantees, SPDAs).</li> </ul>									
<b>Assessment:</b>	A 50-minute mid-semester test (20%) and a 2-hour end-of-semester examination (80%).									
<b>Prescribed Texts:</b>	You will be advised of prescribed texts by your lecturer.									
<b>Recommended Texts:</b>	Information Not Available									

<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	# High level of development: written communication; problem solving; statistical reasoning; application of theory to practice; interpretation and analysis.