

## ACTL30005 Models for Insurance and Finance

<b>Credit Points:</b>	12.50
<b>Level:</b>	3 (Undergraduate)
<b>Dates &amp; Locations:</b>	2012, Parkville This subject commences in the following study period/s: Semester 2, 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>	For students who started their degree in 2007 or earlier: BOTH of: # <b><a href="#">ACTL30006 Financial Mathematics III</a></b> ( <a href="#">../view/current/actl30006</a> ) # <b><a href="#">MAST20005 Statistics</a></b> ( <a href="#">../view/current/mast20005</a> ) AND either: # 620-113 Applied Mathematics (Advanced Plus) or; # 620-123 Applied Mathematics (Advanced). For students who started their degree in 2008 or later: BOTH of: # <b><a href="#">ACTL30006 Financial Mathematics III</a></b> ( <a href="#">../view/current/actl20006</a> ) # <b><a href="#">MAST20005 Statistics</a></b> ( <a href="#">../view/current/mast20005</a> ) _ ( <a href="#">../view/current/mast20005</a> )
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	Please refer to Prerequisites and Corequisites.
<b>Non Allowed Subjects:</b>	Student may not gain credit for both <b><a href="#">ACTL30005 Models for Insurance and Finance</a></b> ( <a href="#">../view/current/actl30005</a> ) and 300-332 Modelling in Insurance and Finance II.
<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>	<b><a href="mailto:dufresne@unimelb.edu.au">dufresne@unimelb.edu.au</a></b> ( <a href="mailto:dufresne@unimelb.edu.au">mailto:dufresne@unimelb.edu.au</a> )
<b>Subject Overview:</b>	Topics include: probability concepts; martingales in actuarial studies and finance; applications of Brownian Motion, geometric Brownian Motion and the lognormal distribution; stochastic calculus; models for financial time series; applications of Monte Carlo simulation in insurance and finance.
<b>Objectives:</b>	<ul style="list-style-type: none"> <li># Have a deep understanding of some probability concepts including sigma-algebra, probability measure, measurable function and random variables, distribution law and expectation of random variables;</li> <li># Describe conditional expectations and apply their properties to simplify calculations;</li> <li># Construct and apply martingales in solving problems insurance and finance;</li> <li># Gain basic knowledge in Brownian motion, geometric Brownian motion.</li> </ul>

	# Describe stochastic integrals apply Ito's formula to price options.
<b>Assessment:</b>	A 2-hour end of semester examination (80%) and up to three assignments totalling not more than 20 pages (20%).
<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>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> <li># <b>Bachelor of Arts</b> (<a href="https://handbook.unimelb.edu.au/view/2012/B-ARTS">https://handbook.unimelb.edu.au/view/2012/B-ARTS</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2012/B-ENVS">https://handbook.unimelb.edu.au/view/2012/B-ENVS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2012/B-MUS">https://handbook.unimelb.edu.au/view/2012/B-MUS</a>)</li> </ul> <p>You should visit <b>learn more about breadth subjects</b> (<a href="http://breadth.unimelb.edu.au/breadth/info/index.html">http://breadth.unimelb.edu.au/breadth/info/index.html</a>) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<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; synthesis of data and other information.
<b>Notes:</b>	Student may not gain credit for both <b>300-316 Models for Insurance and Finance</b> ( <a href="http://handbook.unimelb.edu.au/view/2010/300-316">../view/2010/300-316</a> ) and <b>300-332 Modelling in Insurance and Finance II</b> ( <a href="http://handbook.unimelb.edu.au/view/2010/300-332">../view/2010/300-332</a> ) .