

# ACTL90001 Mathematics of Finance I

<b>Credit Points:</b>	12.50						
<b>Level:</b>	9 (Graduate/Postgraduate)						
<b>Dates &amp; Locations:</b>	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.						
<b>Time Commitment:</b>	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						
<b>Prerequisites:</b>	Students who have not previously studied probability theory must take MAST20004 Probability (may be taken concurrently with this subject). <table border="1" data-bbox="389 577 1485 725"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST20004 Probability</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	MAST20004 Probability	Semester 1	12.50
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MAST20004 Probability	Semester 1	12.50					
<b>Corequisites:</b>	None						
<b>Recommended Background Knowledge:</b>	# Students should have a background in mathematics # Students should be competent in the use of Excel						
<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>	Mr Zhuo Jin						
<b>Contact:</b>	Graduate School of Business and Economics Level 4, 198 Berkeley Street Telephone: +61 3 8344 1670 <b>Online Enquiries</b> ( <a href="https://nexus.unimelb.edu.au/OnlineEnquiryForm.aspx?campaigncode=CMP-01311-VZ8293&amp;cssurl=https://nexus.unimelb.edu.au/cssfiles/gsbe.css&amp;redirecturl=http://www.gsbe.unimelb.edu.au/contactus/nexus/gsbe.html">https://nexus.unimelb.edu.au/OnlineEnquiryForm.aspx?campaigncode=CMP-01311-VZ8293&amp;cssurl=https://nexus.unimelb.edu.au/cssfiles/gsbe.css&amp;redirecturl=http://www.gsbe.unimelb.edu.au/contactus/nexus/gsbe.html</a> ) Web: <a href="http://www.gsbe.unimelb.edu.au">www.gsbe.unimelb.edu.au</a> ( <a href="http://www.gsbe.unimelb.edu.au">http://www.gsbe.unimelb.edu.au</a> )						
<b>Subject Overview:</b>	Topics include compound interest functions; valuation of a series of payments, including where the cash flows and/or the force of interest are continuous functions of time; equations of value; loans repayable by instalments; characteristics of major asset types; and discount valuation of fixed interest securities, ordinary shares and property, including effects of tax; discount valuation of index-linked bonds and forward contracts; term structure of interest rates; duration and convexity; discounted cash flow techniques; distributions of accumulations and present values.						
<b>Objectives:</b>	On successful completion of this subject a student should be able to: # Apply relevant pre-requisite mathematical knowledge in the solution of a range of practical problems; # Describe and apply the main methods of finding the accumulation or present value of money under simple and compound interest and discount; # Derive and apply formulae to calculate the accumulation or present value of a series of payments, including the cases of continuous payments and variable interest rates; # Analyse and solve equations of value for rates of interest; # Calculate rates of return on investment portfolios using methods employed by actuaries;						

	<ul style="list-style-type: none"> <li># Construct and analyse a loan schedule, including cases when terms of a loan are altered;</li> <li># Analyse financial aspects of projects using discounted cash flow techniques;</li> <li># Explain the key features of the main types of financial assets, including shares, bonds, property and derivatives;</li> <li># Perform compound interest calculations relating to financial assets, including the calculation of price and yield;</li> <li># Calculate the delivery price and the value of a forward contract using arbitrage free pricing methods;</li> <li># Perform calculations relating to the term structure of interest rates;</li> <li># Derive results for simple stochastic models for investment returns, and apply these results.</li> </ul>
<b>Assessment:</b>	An assignment of up to 1,000 words (10%) A one hour mid-semester test (20%) A two hour end of semester exam (70%)
<b>Prescribed Texts:</b>	You will be advised of prescribed texts by your lecturer.
<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>	<p>High level of development:</p> <ul style="list-style-type: none"> <li># Written communication</li> <li># Problem solving</li> <li># Application of theory to practice</li> <li># Synthesis of data and other information</li> <li># Use of computer software</li> </ul>
<b>Related Course(s):</b>	Master of Actuarial Science Postgraduate Diploma in Actuarial Science