

# ACTL40002 Risk Theory I

<b>Credit Points:</b>	12.5						
<b>Level:</b>	4 (Undergraduate)						
<b>Dates &amp; Locations:</b>	2016, 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>	The following: <table border="1" data-bbox="387 573 1485 719"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ACTL30004 Actuarial Statistics</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ACTL30004 Actuarial Statistics	Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:					
ACTL30004 Actuarial Statistics	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>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt; &lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>						
<b>Coordinator:</b>	Dr Xueyuan Wu						
<b>Contact:</b>	<a href="mailto:shli@unimelb.edu.au">shli@unimelb.edu.au</a> (mailto:shli@unimelb.edu.au)						
<b>Subject Overview:</b>	Topics include collective risk model, calculation of moments and mgf of aggregate claims, recursion formulae, effect of reinsurance; individual risk model, recursion formulae and approximations; credibility theory, exact credibility and the Buhlmann-Straub model; an introduction to ruin theory.						
<b>Learning Outcomes:</b>	<ul style="list-style-type: none"> <li># Apply relevant pre-requisite knowledge of mathematics, probability theory and statistics in the solution of a range of practical problems;</li> <li># Derive and calculate probabilities for, and moments of, loss distributions both with and without simple reinsurance arrangements;</li> <li># Construct risk models appropriate for short term insurance contracts and derive both moments and moment generating functions for aggregate claim amounts under these models;</li> <li># Derive recursion formulae to calculate aggregate claims distributions for short term insurance contracts;</li> <li># Describe and apply approximate methods of calculating an aggregate claims distribution;</li> <li># Explain the fundamental concepts of Bayesian statistics and apply these concepts to derive Bayesian estimators;</li> <li># Describe and apply the fundamental concepts of credibility theory;</li> <li># Explain the concept of ruin for a risk model;</li> </ul>						

	# Explain the significance of the adjustment coefficient in ruin theory.
<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.