ACTL90004 Insurance Risk Models

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, 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:	MAST20004 Probability or equivalent.
Corequisites:	None
Recommended Background Knowledge:	Students should be competent in the use of Excel.
Non Allowed Subjects:	None
Core Participation Requirements:	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. 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: http://services.unimelb.edu.au/disability
Coordinator:	Assoc Prof Shuanming Li
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Subject Overview:	Topics include collective risk model, calculation of moments and mgf of aggregate claims, recursion formulae, effect of reinsurance; individual risk model, De Pril's recursion formula; fundamentals of decision theory; credibility theory; exact credibility and the Buhlmann-Straub model; basics of ruin theory.
Learning Outcomes:	On successful completion of this subject a student should be able to: # Explain the fundamental concepts of Bayesian statistics and apply these concepts to derive Bayesian estimators; # Describe and apply the fundamental concepts of credibility theory; # Derive and calculate probabilities for, and moments of, loss distributions both with and without simple reinsurance arrangements; # Construct risk models appropriate for short term insurance contracts and derive both moments and moment generating functions for aggregate claim amounts under these models; # Derive recursion formulae to calculate aggregate claims distributions for short term insurance contracts; # Describe and apply approximate methods of calculating an aggregate claims distribution; # Explain the concept of ruin for a risk model.

Subject	Study Period Commencement:	Credit Points:
MAST20004 Probability	Semester 1	12.50

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):	Graduate Diploma in Actuarial Science Master of Actuarial Science Master of Commerce (Actuarial Science) Postgraduate Diploma in Actuarial Science