Subject Description Form

Subject Code	AMA356
Subject Title	Risk Theory
Credit Value	3
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisites: Applied Probability Models (AMA355) or Applied Probability Models for Investment (AMA358)
Objectives	To equip students with basic risk theory and skills of risk management.
Intended Learning Outcomes	Upon satisfactory completion of the subject, students should be able to: 1. command the mathematical models for assessing insurance and financial risks; 2. apply the knowledge and techniques in modeling and calculating the expected claims from individual as well as collective losses; 3. apply the acquired knowledge and techniques to manage risks in insurance and financial industries.
Subject Synopsis/ Indicative Syllabus	*Individual and collective risk models* Models for individual claim random variables, frequency and severity distributions, distribution of aggregate claims, discrete and continuous time models, adjustment coefficient, ruin theory, maximal aggregate loss, Panjer's recursion, simulation. *Applications of risk theory* Claim amount distributions, stop-loss reinsurance, analysis of reinsurance using ruin theory.
Teaching/Learning Methodology	The learning outcomes will be achieved through a combination of lectures, tutorials, interactions between the lecturers and students, assignments, tests and the final examination.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
		1	2	3
a. Assignments/Quizzes	10%	✓	✓	✓
b. Tests	30%	✓	✓	✓
c. Examination	60%	✓	✓	✓
Total	100 %			

	The learning outcomes will be assessed by a combination of assignments, mid-term tests and the final examination.	
	To pass this subject, students are required to obtain Grade D or above in **both** the Continuous Assessment and the Examination components.	
Student Study Effort Required	Class contact:	
	▪ Lecture	28 Hrs.
	▪ Tutorial	14 Hrs.
	Other student study effort:	
	▪ Assignment	20 Hrs.
	▪ Self-study	58 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	Textbook:	
	Klugman, S.A., Panjer, H.H. and Willmot, G.E. Loss Models: From Data to Decisions, 3rd edition	Wiley, 2008
	References:	
	Bowers, N.L., Gerber, H.U., Hickman, J.C., Jones, D.A., and Nesbitt, C.J. Actuarial Mathematics, 2nd edition	Society of Actuaries, 1997
	Buhlmann, H. Mathematical Methods in Risk Theory	Springer-Verlag 2005