Subject Description Form

Subject Code	AMA372
Subject Title	Probability and Distributions for Risk Management
Credit Value	3
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: Introduction to Statistics for Business (AMA1501) or Introduction to Statistics (AMA1502) or Probability and Engineering Statistics (AMA2104) or Inferential Statistics (AMA237) or Introduction to Statistics (AMA2634/AMA2634A) or Probability & Distributions (AMA269 or AMA2691) or Basic Statistics (AMA261) or equivalent
Objectives	This subject is to provide students with wide knowledge of risk models and enable them to apply the probability models to solve related problems.
Intended Learning Outcomes	Upon satisfactory completion of the subject, students should be able to: a. construct probability models for assessing risks; command the knowledge and techniques in modeling and calculating the probability and related measures; b. apply the acquired knowledge and techniques to assess stochastic situations.
Subject Synopsis/ Indicative Syllabus	Review on Probability Theory, random variables, moment generating functions. (9 hours) Introduction to discrete distributions, for example, Binomial, hyper-geometric, Poisson, geometric, negative binomial, uniform distributions, distributions of 2 random variables. (9 hours) Introduction to continuous distributions, for example, Uniform, exponential, gamma, normal, beta. Review of double integration, convolutions, distributions of 2 random variables. (11 hours) Sampling distribution, ordered statistics, transformation of variables. Joint, marginal and conditional distributions. (10 hours)
Teaching/Learning Methodology	The subject will be delivered mainly through lectures and tutorials. The lectures will be conducted to introduce concepts of mathematical methods for risk management in the syllabus, which are then reinforced by learning activities involving demonstration, tutorial exercise and assignments.

	Specific assessment methods	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)	
			a	b
Assessment Methods in Alignment with Intended Learning Outcomes	1. Assignments	10%	✓	✓
	2. Tests	30%	✓	✓
	3. Examination	60%	✓	✓
	Total	100 %		

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The subject focuses on knowledge, skill and understanding of **Probability and Distributions for Risk Management**, thus, **Exam-based assessment** is the most appropriate assessment method, including 30% test and 60% examination. Moreover, 10% worth of assignments are included as a component of continuous assessment so as to keep the students in progress.

Continuous Assessment comprises of assignments and tests. A written examination is held at the end of the semester.

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 Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Assignment	20 Hrs.
	▪ Self-study	58 Hrs.
	Total student study effort	117 Hrs.

Reading List and References	Textbook:		
	Bean, M.A.	Probability: The Science of Uncertainty with Applications to Investments, Insurance, and Engineering Chapter. 1 - 9	Brooks Cole 2001
	References:		
	Berry, D.A. and Lindgren, B.W.	Statistics Theory and Methods 2nd edition	Duxbury Press 1995

Mood, A.M., Graybill, F.A., Boes, D.C.	Introduction to the Theory of Statistics 3rd edition	McGraw Hill 1974
Freund, J.E.	Mathematical Statistics 5th edition	Prentice Hall 1992
Hassett, M.J. & Stewart, D.	Probability for Risk Management	ACTEX Publications 1999
Broverman, S.A.	ACTEX Study Manual, Course 1	ACTEX Publications 2004