City University of Hong Kong
Course Syllabus

offered by Department of Management Sciences
with effect from Semester A 2024/25

Part I Course Overview

Course Title:	Statistical Modelling in Risk Management
Course Code:	MS6211
Course Duration:	One Semester
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This comprehensive risk management course equips students with essential business knowledge and practical skills to navigate the complex landscape of financial risks. The curriculum focuses on developing a deep understanding of risk management principles and their application in real-world scenarios. Students will explore advanced techniques for identifying, assessing, and mitigating various types of risks faced by organizations. A key component of the course is the development of modeling and computing skills, with particular emphasis on creating and evaluating market and credit risk models. Through hands-on exercises and case studies, participants will learn to leverage data-driven approaches to enhance decision-making processes in risk management. By the end of the course, students will be well-prepared to apply their knowledge and skills to effectively manage risks across different business domains, contributing to the overall financial stability and success of organizations in today's dynamic business environment.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Demonstrate a comprehensive understanding of the fundamental definitions in market, credit, and operational risk.	20%		✓	
2.	Demonstrate the basic concepts and principles related to risk management;	30%		✓	
3.	Apply and analyze appropriate models to measure risk and to provide solutions or recommendations for managing and mitigating risk;	30%		✓	
4.	Demonstrate the construction of risk mitigation strategies and align them with the needs of particular organizations.	20%			✓
		100%			

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Learning and Teaching Activities (LTAs)

(LTAs designed to facilitate students' achievement of the CILOs.)

LTA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
Interactive Lecture	Actively participate in interactive lectures and discussion to develop a comprehensive understanding of the fundamental concepts, analytical techniques, and practical applications of risk management.	✓	✓	✓	✓			3
Case studies & group discussions	Complete case studies and group projects to reinforce the knowledge on risk management.		✓	✓	✓			2
Project	Complete selected group projects to engage in practical applications of the knowledge in the lectures to real-world problems.			✓	✓			2

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting	Remarks
	1	2	3	4				
Continuous Assessment: __100__%								
Project			✓	✓			30%	
Assignments	✓	✓	✓	✓			30%	
Tests	✓	✓	✓	✓			30%	
Class Participation	✓	✓	✓	✓			10%	
Examination: __0__%								
							100%	

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Project	Ability to present group projects with good understanding of risk management concepts and methodologies	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Assignments	Evidence of good understanding of concepts and methodologies	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Tests	Ability to correctly solve the problems with good understanding of concepts and methodologies	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Class Participation	Evidence of Attending at least 80% of the lectures	High	Significant	Moderate	Basic	Not even reaching marginal levels

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Project	Ability to present group projects with good understanding of risk management concepts and methodologies	High	Significant	Moderate	Not even reaching marginal levels
2. Assignments	Evidence of good understanding of concepts and methodologies	High	Significant	Moderate	Not even reaching marginal levels
3. Tests	Ability to correctly solve the problems with good understanding of concepts and methodologies	High	Significant	Moderate	Not even reaching marginal levels
4. Class Participation	Evidence of Attending at least 80% of the lectures	High	Significant	Moderate	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

1. Introduction

Nature, scope and terminology of risk management topics. The burden of risk. Measurement of risk. Management of risk.

2. The Risk Management Process

Risk classification and evaluation. Methods of handling risk. Selecting risk management techniques. Insurance as a risk management tool.

3. Risk and Insurance

Pooling of losses. Payment of accidental losses. Risk transfer. Indemnification. Requirements of insurable risk. Adverse selection.

4. Credit Risk Management

Introduction to Credit Risk. Scorecard Development Roles. Risk Scorecard Development Planning. Defining project parameters, e.g., good/bad, exclusions, indeterminates.

5. Credit Risk Model and Strategy Management

Development Database Creation. Model Development: creating a scorecard. Scorecard Management Reports. Strategy Development. Post-Implementation.

6. Operational Risk Management

Introduction to Operational Risk. Aims of Operational Risk Management. Key Components of Operational Risk Management. Hedging Strategies.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

Nil

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Thomas, L., Edelman, D., and Crook, J., Credit Scoring and Its Applications, SIAM, 2002.