

City University of Hong Kong

Information on a Course
offered by Department of Management Sciences
with effect from Semester A in 2014 / 2015

Part I

Course Title: Statistical Modelling in Risk Management

Course Code: MS6211

Course Duration: One Semester

No. of Credit Units: 3

Level: P6

Medium of Instruction: English

Prerequisites: Nil

Precursors: Nil

Equivalent Courses: Nil

Exclusive Courses: Nil

Part II

Course Aims

This course aims to

- Prepare students with business knowledge of risk management with emphasis on operational risk management, credit risk management, and financial risk management.
- Develop students' modelling and computing skills to create and evaluate credit scorecards.

Course Intended Learning Outcomes (CILOs)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting
1.	Define credit, financial, and operational risks; (Ability)	20%
2.	Interpret various basic concepts and principles related to risk management; (Ability)	30%
3.	Create appropriate models to measure risk and to provide solutions or recommendations for managing and mitigating risk; (Ability)	30%
4.	Align risk mitigation strategy with the needs of particular organizations. (Accomplishment)	20%

Teaching and Learning Activities (TLAs)

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	TLAs	Hours/week
1&2	1. Lecture Interactive lectures, case studies, group discussions	10 weeks.
3	2. Case studies & group discussions Students are given tasks to discover various risk control strategies and apply them to different industries.	1 week.
4	3. Project Students work in teams to construct models from real data, summarize their findings in a report and make in class presentation.	2 weeks.

Constructive Alignment of CILOs and TLAs

	TLA 1	TLA 2	TLA 3
CILO 1	✓		
CILO 2	✓	✓	
CILO 3	✓	✓	✓
CILO 4	✓	✓	✓

Assessment Tasks

(These are indicative of likely tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course.)

CILO No.	Assessment Tasks (ATs)	Assessment Details	Weighting
3, 4	1. Project	Students work in teams to construct models from real data, summarize their findings in a report and make in class presentation.	30%
1, 2, 3, 4	2. Assignments	Students work on assigned problem sets and business cases to consolidate their understanding of the concepts and methods. They have to apply the techniques learned in the course to discover various risk control strategies and apply them to different industries.	30%
1, 2, 3, 4	3. Tests	The test is designed to assess students' knowledge and understanding of the concepts and methods discussed in the course.	30%
1, 2, 3, 4	4. Class Participant	Students are active on class participant	10%

Constructive Alignment of CILOs and Assessment Tasks

	AT 1	AT 2	AT 3
CILO 1		✓	✓
CILO 2		✓	✓
CILO 3	✓	✓	✓
CILO 4	✓	✓	✓

Grading of Student Achievement:

Assignment

Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent:	Strong evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems.
A	4.0		
A-	3.7		
B+	3.3	Good:	Evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems.
B	3.0		
B-	2.7		
C+	2.3	Adequate:	Some evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems.
C	2.0		
C-	1.7		
D	1.0	Marginal:	Little evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems.
F	0.0	Failure:	No evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems.

Project

Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent:	Strong evidence of original thinking, good organization, and knowing how to define risks and apply quantitative methods to solve real-life risk management problems.
A	4.0		
A-	3.7		
B+	3.3	Good:	Evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and reasonably good writing.
B	3.0		
B-	2.7		
C+	2.3	Adequate:	Some evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems.
C	2.0		
C-	1.7		
D	1.0	Marginal:	Little evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems and acceptable writing.
F	0.0	Failure:	No evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and the report is poorly organized and written.

Test

Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent:	Strong evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and align risk management solutions with the needs of organization.
A	4.0		
A-	3.7		
B+	3.3	Good:	Evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and align risk management solutions with the needs of organization.
B	3.0		
B-	2.7		
C+	2.3	Adequate:	Some evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and align risk management solutions with the needs of organization.
C	2.0		
C-	1.7		
D	1.0	Marginal:	Some evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and align risk management solutions with the needs of organization.
F	0.0	Failure:	No evidence of knowing how to define risks and apply quantitative methods to solve real-life risk management problems, and align risk management solutions with the needs of organization.

Part III

Keyword Syllabus

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.

Recommended Reading

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