

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: Business Analytics and Decision Modelling

Course Code: FB5731

Course Duration: 4 weeks, one semester

Credit Units: 2

Level: P5

Medium of Instruction: English

Prerequisites: Nil

Precursors: Nil

Equivalent Courses: Nil

Exclusive Courses: MS5731 Quantitative Methods (From the old curriculum)

Part II

Course Aims

This course aims to

- Provide students with the key concepts, knowledge, and tools to use data, analytical models and information technology to support practical managerial decision-making
- Develop students' basic skills and hands-on experiences to uncover useful information and solve real business problems by analyzing the complex data sets, and to derive the best possible decisions to gain a company competitive advantages and enhanced capabilities in better dealing one's daily business decisions.
- Expose students to the best practices and successful stories of how management science or quantitative methods has generated significant business values and competitive advantages for organizations

Course Intended Learning Outcomes (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)

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

No.	CILOs	Weighting (if applicable)
1.	Demonstrate basic knowledge in the concepts, principles and benefits of some most widely used management science techniques and their applications	3
2.	Employ some basic management science tools of data analysis, modelling and information technologies to solve and to analyze some real managerial decision-making problems	3
3.	Examine and evaluate the managerial applications of some basic quantitative methods	2
4.	Interpret and communicate the analytical results and solutions to non-quantitative managers and practitioners	2

(1: least important; 3: most important)

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)

No.	TLAs
1	<u>Lecture:</u> Concepts and general knowledge of logistics and supply chain operations and the applications of management science techniques in logistics and supply chain decision analysis
2	<u>Lab sessions:</u> Hands-on exercises in using some computer software, such as Microsoft Excel, to solve managerial decision-making problems by applying learnt quantitative techniques
3	<u>Group case studies:</u> Real case analysis and discussion
4	<u>Reading assignments:</u> Supplemental reading materials on successful stories and industrial practices

Assessment Tasks/Activities

(Indicative of likely activities and 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)

Written Examination (2 hours)	50%
Course work	50%
based on	
case studies	30%
course assignments	20%
<hr/> Total	<hr/> 100%

CILO No.	Type of Assessment Tasks/Activities			Weightings
	Written Examination	Case Studies	Course Assignments	
CILO 1	2	1	1	30%
CILO 2	2	2	2	30%
CILO 3	2	2	2	20%
CILO 4	2	2	1	20%
Total	50%	20%	30%	100%

(1: Minor focus on the ILO; 2: Main focus on the ILO)

Grading of Student Achievement: Refer to Grading of Courses in the Academic Regulations (Attachment) and to the Explanatory Notes.

Written Examination

Letter Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent:	Strong evidence of ability to analyse, synthesize; superior grasp of subject matter; evidence of extensive knowledge base.
A	4.0		
A-	3.7		
B+	3.3	Good:	Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.
B	3.0		
B-	2.7		
C+	2.3	Adequate:	Student who is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.
C	2.0		
C-	1.7		
D	1.0	Marginal:	Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.
F	0.0	Failure:	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature.

Group Case Study

Letter Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent:	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.
A	4.0		
A-	3.7		
B+	3.3	Good:	Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.
B	3.0		
B-	2.7		
C+	2.3	Adequate:	Some evidence of grasp of subject, little evidence of critical capacity and analytic ability; reasonable understanding of issues.
C	2.0		
C-	1.7		
D	1.0	Marginal:	Sufficient familiarity with the subject matter to enable the student to progress without repeating the case report.
F	0.0	Failure:	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature.

Course Assignment

Letter Grade	Grade Point	Grade Definitions	
A+ A A-	4.3 4.0 3.7	Excellent:	Strong evidence of understanding the key concepts and definitions of the learned subject; capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.
B+ B B-	3.3 3.0 2.7	Good:	Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.
C+ C C-	2.3 2.0 1.7	Adequate:	Student who is profiting from the university experience; understanding of the subject; ability to show some evidence of familiarity with literature.
D	1.0	Marginal:	Sufficient familiarity with the subject matter to enable the student to progress further.
F	0.0	Failure:	Little evidence of familiarity with the subject matter; limited or irrelevant use of literature.

Part III

Keyword Syllabus

Introduction to Modelling and Management Science

Modelling for Managerial Decisions. Quantitative vs. qualitative Problem Solving Process. Use and Implementation of Modelling

Basic Concepts in Probability and Statistics

Expected Values. Standard Deviation. Normal Distribution. Concepts of Sampling. Estimation and Confidence Intervals. Data analysis using Excel

Time Series Analysis

Time series forecasting techniques and their applications. Moving averages. Exponential Smoothing. Seasonality. Trend models.

Regression Analysis

Simple Linear Regression models. Estimation and prediction using regression method. Interpretation of regression parameters and coefficient of correlation.

Discriminant and Classification Analysis

The two-group discriminant problem. The k-group discriminant problem. Excel implementation and business applications.

Constrained Optimization techniques

Optimization modelling. Linear Programming formulation. Using Excel Solver to solve constrained optimization problem. Other constraint optimization models (including Integer and Non-linear programming problems) and their applications.

Multiple Objective Decision Making Techniques

Multiple objective decision problems and decision making tools. The Analytical Hierarchy Process.

Simulation Modelling and Analysis

Simulation concepts and modelling. Excel simulation and managerial applications

Implementation Issues

Success, challenges and issues in quantitative managerial decision support. Uses and abuses of quantitative results in real-Life situations. Strengths and limitations of quantitative models.

Recommended Reading Text(s)

S. Christian Albright, Wayne Winston, Christopher Zappe
Data Analysis and Decision Making with Microsoft® Excel, Revised, 3rd Edition,
ISBN-10: 0324662440, ISBN-13: 9780324662443, © 2009

Cliff Ragsdale, **Spreadsheet Modeling & Decision Analysis: A Practical Introduction to Management Science, Revised, 5th Edition**, Virginia Polytechnic Institute and State University
ISBN-10: 0324656637 ISBN-13: 9780324656633 © 2008

Taylor, B W, **Introductory Management Science**, 8/e (2004, Prentice Hall)

Levine, D M, Stephan, D, Krehbiel, T C and Berenson, M L: **Statistics or Managers**, 4/e (2005, Prentice Hall)

Wisniewski, M: **Quantitative Methods for Decision Makers**, 3/e (2002, Prentice Hall)

Online Resources

www.informs.org

