Hong Kong Baptist University
Faculty of Science
Department of Mathematics

Title (Units): ORBS7080 Advanced Spreadsheets and Decision Support Systems (3,3,0)

Course Aims: The course will cover the use of spreadsheets to structure, analyse, and solve complex managerial problems. Students will be introduced to both basic and advanced features of Microsoft Excel, which are highly sought after skills in the job market and can increase their employment opportunities.

Prerequisite: No

Prepared by: Luo Dehui

Remark: This course is delivered by staff of HKBU or University of Kent.

Course Intended Learning Outcomes (CILOs):

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

No.	Course Intended Learning Outcomes (CILOs)
1	Explain the nature of modelling and how real-world economic activity may be represented in mathematical form and realised on a computer
2	Determine when a realistic problem is in non-standard form and represent it quantitatively using a computer
3	Use the quantitative and statistical facilities of industry-standard spreadsheet software
4	Build spreadsheet based decision support systems to analyse real-world problems using approaches and methodologies from business analytics

Teaching & Learning Activities (TLAs):

CILO	TLAs will include the following:
1,2	New concepts will be introduced in lectures, together with instructions and any requisite theory. Where possible, theory will be demonstrated using practical examples.
3,4	Computer terminals will afford students the opportunity of putting theory into practice and will include learning how to model, analyse, and perform calculations using Excel spreadsheets.

Assessment:

No.	Assessment Methods	Weighting	CILO Addressed	Remarks
1	Project	100%	all	The course will be assessed 100% by a written report (~2000-4000 words) on the use of spreadsheet modelling applied to a realistic case-study problem. The coursework will assess students' comprehension of key topics introduced in the course, as well as require them to demonstrate their model building and analytical skills. There will be both individual and group components.

Course Intended Learning Outcomes and Weighting:

Content	CILO No.	Teaching (in hours)
1. Basic spreadsheet functionalities	3	6
2. Data management facilities	3	9
3. What-if analysis	3	6
4. Advanced spreadsheet facilities	3	9
5. Applications of spreadsheets	1,2,4	9

References:

1. Hillier, F.S. and Hillier, M.S. (2003) *Introduction to Management Science: A Modelling and Case Studies Approach with Spreadsheets (2nd Edition).* McGraw-Hill.
2. S. Christian Albright (2016) V*BA for Modelers: Developing Decision Support Systems with Microsoft Office Excel (5th Edition)*. Cengage Learning
3. Winston, W.L. (2004) *Operations Research: Applications and Algorithms (4th Edition).* Duxbury Press.
4. Winston, W. (2014) *Microsoft Excel 2013: Data Analysis and Business Modeling (1st Edition).* Microsoft Press.

Course Content in Outline:

Topics	Hours
1. Review of basic spreadsheet functionalities (e.g., important formulas, relative and absolute cell addressing, formatting, charts).	6
2. Data management facilities (e.g., sorting, filtering, data forms, pivot tables).	9
3. What-if analysis: scenario manager, goal seek, data tables.	6
4. Other advanced spreadsheet facilities (e.g., look-up tables, controls, optimisation tools, statistical tools).	9
5. How to use spreadsheets to structure, analyse and solve managerial problems (e.g., scheduling, stock control, optimization, forecasting, financial analysis, project management).	9

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