City University of Hong Kong

Information on a Course
offered by the Department of Management Sciences
with effect from Semester A in 2012 / 2013

Part I

Course Title: Statistical Methods I

Course Code: MS5212

Course Duration: One Semester

No. of Credit Units: 3

Level: P5

Medium of Instruction: English

Prerequisites: Nil

Precursors: Nil

Equivalent Courses: Nil

Exclusive Courses: MS5312 Business Statistics

Part II

Course Aims

The aims of this course are to

- Provide students with the statistical concepts and methods used in solving business problems;

- Develop students' analytic ability to integrate and apply the knowledge and statistical techniques learned in the course to solve business problems;

Course Intended Learning Outcomes (CILOs)
Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting
1.	Identify the key issues of a business problem; and formulate these issues into statistical models for further analysis.	N.A.
2.	Apply the statistical knowledge acquired through the course to select the most appropriate technique for a given problem.	N.A.
3.	Analyze relevant data effectively using appropriate statistical techniques to solve the problems and evaluate the results in the context of the problems.	N.A.
4.	Develop the ability to use statistical packages to conduct statistical analysis.	N.A.

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, 3	1. Lecture Concepts and specific subject knowledge are explained	2.0
1, 2, 3	2. Class discussion Students work in groups to discuss real business problems and cases, and to explore possible solutions. The instructor provides instant feedback and support for students' queries.	0.5
1, 2, 3, 4	3. In-class exercises With the teacher acting as a facilitator, students work together on assigned problem sets to consolidate their understanding of the concepts and methods. They are required to formulate the problem into a mathematical model (the concept) and proceed to solve the problem (the method). Although these are standard textbook exercises, these exercises have real-life applications.	0.5
1, 2, 3, 4	4. Statistical packages sessions Provide demonstration and hand-on experience of using statistical packages to analyse data sets. They have to formulate the problems into a statistics model and analyze the data with the support of the statistical packages.	N.A.

Constructive Alignment of CILOs and TLAs

	TLA 1	TLA 2	TLA 3	TLA 4	Hours/week
CILO 1	✓	✓	✓	✓	N.A.
CILO 2	✓	✓	✓	✓	N.A.
CILO 3	✓	✓	✓	✓	N.A.
CILO 4			✓	✓	N.A.

Assessment Tasks

(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)

CILO No.	Assessment Tasks (ATs)	Assessment Details	Weighting
1, 2, 3, 4	1. Assignments	Students work together on assigned problem sets and business cases to consolidate their understanding of the concepts and methods. They have to apply the statistical techniques learned in the course to solve the problems or design workable efficient solutions for the cases.	20 %
1, 2, 3, 4	2. Test	The test is designed to assess students' knowledge and understanding of the concepts and methods discussed in the course.	20%
1, 2, 3, 4	3. Examination	The exam is designed to assess students' knowledge and understanding of the concepts and methods discussed in the course.	60 %

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+ A A-	4.3 4.0 3.7	Excellent:	Strong evidence of knowing how to apply the relevant techniques and software in performing statistical analysis
B+ B B-	3.3 3.0 2.7	Good:	Evidence of knowing how to apply the relevant techniques and software in performing statistical analysis
C+ C C-	2.3 2.0 1.7	Adequate:	Some evidence of knowing how to apply the relevant techniques and software in performing statistical analysis.
D	1.0	Marginal:	Sufficient familiarity with the subject matter to enable the student to progress without repeating the assignment
F	0.0	Failure:	Little evidence of familiarity with the subject matter;

Test

Grade	Grade Point	Grade Definitions	
A+ A A-	4.3 4.0 3.7	Excellent:	Strong evidence of original thinking; good organization, 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:	Some evidence of grasp of subject, little evidence of critical capacity and analytic ability; reasonable understanding of issues.
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.

Written Examination

Grade	Grade Point	Grade Definitions	
A+ A A-	4.3 4.0 3.7	Excellent:	Strong evidence of original thinking; good organization, 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 develop solutions to simple problems in the material.
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.

Part III

Keyword Syllabus

1. **Distribution Theory**

    Random variables, Binomial distribution, Normal distribution, Central Limit Theorem, Expectation

2. **One Population Case: Estimation**

    Point estimation and interval estimation of population mean, proportion and variance

3. **One Population Case: Hypothesis Testing**

    Elements of a statistical test, Type I and Type II errors, Test on a population mean, proportion and variance, p-value, Power of a test, Relation between hypothesis testing and confidence interval estimation

4. **Comparison of two populations**

    Inference concerning two population means, proportions and variance

Recommended Reading

Levine, D.M., Stephen, D.F., Krehbiel, T.C. and Berenson, M.L., Statistics for Managers, 6/e, Pearson, 2011.

Mendenhall, W., Beaver, R.J. and Beaver, B.M., A Brief Course in Business Statistics, 2/e, Duxbury, 2001.

Keller, G. and Warrack, B., Statistics for Management and Economics, 8/e, Duxbury, 2011.

Carlson, W., Newbold, P. and Thorne, B., Statistics for Business and Economics, 7/e, Pearson, 2009.