

**City University of Hong Kong  
Course Syllabus**

**offered by Department of Management Sciences  
with effect from Semester A 2018/19**

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**Part I Course Overview**

<b>Course Title:</b>	Analytics using SAS
<b>Course Code:</b>	MS3251
<b>Course Duration:</b>	One semester
<b>Credit Units:</b>	3
<b>Level:</b>	B3
<b>Proposed Area:</b> <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
<b>Medium of Instruction:</b>	English
<b>Medium of Assessment:</b>	English
<b>Prerequisites:</b> <i>(Course Code and Title)</i>	Nil
<b>Precursors:</b> <i>(Course Code and Title)</i>	CB2200 Business Statistics
<b>Equivalent Courses:</b> <i>(Course Code and Title)</i>	MS3217 SAS Programming
<b>Exclusive Courses:</b> <i>(Course Code and Title)</i>	Nil

## Part II Course Details

### 1. Abstract

(A 150-word description about the course)

This course aims to:

- Provide students with concepts and knowledge of analytics using SAS
- Develop students' analytics technique to access data, manipulate data and do statistical reporting.
- Prepare students for a position in managing business activity for data management, database marketing in the commercial and government sectors.

### 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 <sup>#</sup>	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Discuss the relevant concepts of analytics in data management	10%		✓	
2.	Apply data handling techniques to produce SAS dataset from raw data file and different sources	10%			✓
3.	Discuss the methods of data manipulation including variable selection, observation selection, outlier handling, missing value handling and so on	60%	✓		
4.	Produce statistical, summary reports and Introduction to SAS macro	20%		✓	
		100%			

\* If weighting is assigned to CILOs, they should add up to 100%.

<sup>#</sup> Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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 self-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. Teaching and Learning Activities (TLAs)

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

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
Lecture	Concepts and general knowledge of analytics using SAS are explained Introduce the methods of data manipulation and statistical reporting	✓	✓	✓	✓			

Tutorial	Students perform in-class hand-on exercise so that learning difficulties can be identified and tackled	✓	✓	✓	✓			
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#### 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: <u>50</u> %								
Assignment	✓	✓	✓	✓			20%	
Mid-term Test	✓	✓	✓	✓			30%	
Examination: <u>50</u> % (duration: 2 hours, if applicable)								
* The weightings should add up to 100%.							100%	

## 5. Assessment Rubrics

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

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Assignment	ABILITY to UNDERSTAND the knowledge of analytics using SAS	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Mid-term Test	ABILITY to EXPLAIN the key concepts and logical algorithm of analytics using SAS	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Written Examination	ABILITY to EXPLAIN in DETAIL to assess students' professional knowledge of data management using SAS as well as the ability to apply them to solve business problems	High	Significant	Moderate	Basic	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. Concepts of analytics using SAS**

Introduction to SAS Foundation and logical algorithm;

**2. SAS Basic**

Concepts and component of SAS system; Raw data handling; SAS dataset creation; Produce simple statistical reports;

**3. Basic analytics using SAS**

Add more information to all or selected observations; Variables selection; Observations selection; Outlier handling; Missing value handling; Calculate across observations; Make use of SAS functions;

**4. Modifying and combining data**

Multiple datasets handling; Combine SAS datasets; Create a sample of data;

**5. Producing Statistical and Summary Reports**

Generate statistical reports using FREQ, MEANS, and REPORT procedures. Delivery output of reports in a variety of formats;

**6. Introduction to SAS macro**

**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.)*

SAS Institute Inc. 2015. *Step-by-Step Programming with Base SAS® 9.4, Second Edition*. Cary, NC: SAS Institute Inc.

**2.2 Additional Readings**

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

1.	Cody, Ronald P. and Smith, Jeffrey K. 2006, Applied statistics and the SAS programming language, Fifth edition. Addison Wesley.
2.	Cody, Ron 1996, The SAS Workbook. Cary, NC: SAS Institute Inc.
3.	Delwiche, Lora D. and Susan J. Slaughter 2003, The Little SAS Book: A Primer, Third Edition. Cary, NC: SAS Institute Inc.
4.	Cody, Ron 2007, Learning SAS by Example. Cary, NC: SAS Institute Inc.