

# MS3251: ANALYTICS USING SAS

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## Effective Term

Semester A 2022/23

## Part I Course Overview

### Course Title

Analytics using SAS

### Subject Code

MS - Management Sciences

### Course Number

3251

### Academic Unit

Management Sciences (MS)

### College/School

College of Business (CB)

### Course Duration

One Semester

### Credit Units

3

### Level

B1, B2, B3, B4 - Bachelor's Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Nil

### Precursors

CB2200 Business Statistics

### Equivalent Courses

Nil

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

- 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.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)		
1	Discuss the relevant concepts of analytics in data management	10		x
2	Apply data handling techniques to produce SAS dataset from raw data file and different sources	10		x
3	Discuss the methods of data manipulation including variable selection, observation selection, outlier handling, missing value handling and so on	60	x	
4	Produce statistical and summary reports	20		x

#### 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 real-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.

### Teaching and Learning Activities (TLAs)

TLAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Concepts and general knowledge of analytics using SAS are explained Introduce the methods of data manipulation and statistical reporting	1, 2, 3, 4	
2	Tutorial	Students perform in-class hand-on exercise so that learning difficulties can be identified and tackled	1, 2, 3, 4	

### Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignments	1, 2, 3, 4	30	
2	Tests	1, 2, 3, 4	20	

### Continuous Assessment (%)

**Examination (%)**

50

**Examination Duration (Hours)**

2

**Assessment Rubrics (AR)**

**Assessment Task**

Assignments

**Criterion**

ABILITY to UNDERSTAND the knowledge of analytics using SAS

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

Tests

**Criterion**

ABILITY to EXPLAIN the key concepts and logical algorithm of analytics using SAS

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

Written Examination

**Criterion**

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

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

## Part III Other Information

**Keyword Syllabus****Concepts of analytics using SAS**

Introduction to SAS Foundation and logical algorithm

**SAS Basic**

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

**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

**Modifying and combining data**

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

**Producing Statistical and Summary Reports**

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

**Reading List****Compulsory Readings**

Title	
1	Step-by-Step Programming with Base SAS 9.4, 2nd Edition, 2017, SAS Institute.

**Additional Readings**

Title	
1	SAS Certification Preparation Guide: Base Programming for SAS 9, 5th Edition, 2018, SAS Institute.
2	Beginning SAS Programming: a true beginner's guide for learning SAS, Yufeng Guo, 2015, CreateSpace Independent Publishing Platform.

3	Practical and Efficient SAS Programming: The Insider' s Guide, Martha Messineo, 2017, SAS Institute.
4	SAS Essentials: Mastering SAS for Data Analytics, 2nd Edition, Alan C. Elliott, Wayne A. Woodward, 2015, Wiley.