

**MODULE: BUSINESS MATHEMATICS & STATISTICS**

**CODE: BABS-1-1-09**

**Stage: I**

**Number of Credits: 4 semester credits / 6 quarter units**

**Theme: Finance**

**Assessment Weighting: 40% Coursework 60% Examination**

## **INTRODUCTION**

This module provides the students with the essential analytical skills to support an accurate and rigorous approach to decision making. The module is specifically designed to develop the students modelling abilities and problem solving skills required in the modern business world.

## **AIMS**

The aims of this module are:

To ensure students understand the applicability of mathematics and statistics as a basis for decision making in a range of business disciplines (e.g. finance, marketing etc)

To provide students with the core mathematical skills necessary to support their accurate manipulation and interpretation of numerical data

To develop students mathematical skills relevant to the business sector

To develop students confidence in the application of mathematics to support them in their analysis of business information

## **LEARNING OUTCOMES**

On successful completion of this module, students will be able to:

Appreciate the importance of mathematics and statistics for the business person

Demonstrate relationships graphically and interpret completed graphs

Design a simple questionnaire and select and collect data as part of a survey

Analyse the results of a survey and present the results in an easily understood manner

Understand the purpose of probability distributions and know when and how to use the various probability distributions

Recognise the aims of statistical inference and be confident to apply statistical tests to data

Apply probability techniques to decision making  
Calculate and interpret correlation coefficients  
Calculate and interpret the equation of a regression line manually and through suitable software programmes  
Use various methods of forecasting-regression analysis and time series analysis  
Compare and choose between different capital investment projects using discounting techniques  
Solve a variety of business related problems using the process of differentiation

## **SYLLABUS**

Data presentation and collection  
Frequency distribution  
Frequency tables  
Histograms, ogives bar charts, pie charts, etc

Central location and dispersion

Measures of central location  
Measures of dispersion

Regression & Correlation

Regression analysis  
Correlation  
Time series  
Multiple regression  
Applications

Probability

The rules  
Decision Trees  
Permutation and combinations

Probability Distributors

Normal  
Binomial  
Poisson

Sampling and tests of hypothesis

Types of samples

Distribution of means  
Central limit theorem  
Confidence of intervals  
Tests of hypothesis

Index Numbers

Constructing an index number  
The Laspeyres price index  
The Paasche price index  
Changing the real base  
Changing the base year  
The retail price index

Time Value of Money

Discounting and present values  
Investment appraisal  
Depreciation  
Annuities and financial instruments

Calculus and business applications

## **TEACHING AND LEARNING METHODS**

This course will be taught using a combination of formal lectures and tutorials. Formal lectures will be used to demonstrate principles and methods. Assignments will be set following on from material covered in class and students will be given individual assistance with these in smaller groups. Use will be made of computer packages to facilitate learning and to ensure that the student is familiar with the available statistical packages. As far as possible the students will be encouraged to source data themselves and analyse it using the methods studied in class.

## **ASSESSMENT METHODS**

Course work will account for 40% of the marks, course work will be typically presented in the following formats, e.g., multiple choice exams, case studies, primary research projects. On module completion an examination will account for the remaining 60% of the marks.

## **PRIMARY READING**

*Quantitative Methods for Decision Makers*, 2<sup>nd</sup> Edition, Mik Wisniewski  
Pitman Publishing

## **RECOMMENDED READING LIST**

Quantitative Methods for Business, 3<sup>rd</sup> Edition, Donald Waters, FT/Prentice Hall  
*Quantitative approaches in Business Studies*, 5<sup>th</sup> Edition, Clare Morris, FT/  
Prentice Hall

*Essential Quantitative Methods for Business Management and Finance*, 2<sup>nd</sup>  
Edition, Les Oakshott, Palgrave

Use will also be made of Journals, Newspapers and financial publications.