

Business Maths and Statistics | FP014

Module Summary

This module provides students with the mathematical and statistical training necessary for successful degree-level study of Accounting and Finance, Management or Business Studies. Students will become more competent and grow in self-confidence by practising these techniques under supervision, and will develop intuition and gain valuable insight by applying these techniques to simple structured problems.

Module Objectives

The Module will:

1. Deepen students' understanding of Mathematics in a way that builds confidence to apply these techniques to 'real-world' problems
2. Develop in students the ability to apply logical reasoning to the solutions of structured problems, to recognise incorrect reasoning and to generalise arguments
3. Introduce students to fundamental statistical concepts, including measures of central tendency, variation, correlation and regression
4. Encourage students to critically appraise statistical data and to assess the accuracy, validity and reliability of reported results

Learning Outcomes

By the end of the module, students will have:

1. Apply their repertoire of mathematical and statistical tools and techniques to a variety of business contexts
2. Construct rigorous arguments by framing precise statements that lend themselves to mathematical deduction or statistical inference
3. Use a calculator or a spreadsheet to perform calculations to an appropriate level of accuracy
4. Undertake basic statistical analyses of data
5. Interpret the results of mathematical calculations and statistical analyses, and use them to inform decision-making
6. Critically appraise reported mathematical and statistical results, carefully considering the validity of the underlying assumptions
7. Exhibit a range of key competences including time management, team-work, communication skills and presentation skills, research skills (including information retrieval, interpretation and citation) and critical analysis

Assessment Methods

1500 Word essay	15%
Group project including 4,000 word paper	20%
Class test	15%
Two hour examination	50%

Part 1: Introduction to Statistics

- ▶ Industrial practices
- ▶ The use of key unit criteria to previous learning and its relevance to their future studies
- ▶ Applying educational and or work related experience to the use of key criteria presented within the unit

Part 2: Data and their presentation

- ▶ Data collection methods
- ▶ Data forms and their accuracy
- ▶ Frequency distributions and charts

Part 3: Statistical measures

- ▶ Standard deviation
- ▶ Arithmetic operations
- ▶ Quantiles and quartile distribution

Part 4: Regression and correlation

- ▶ Linear functions and graphs
- ▶ Regression techniques
- ▶ Correlation techniques and Spearman's rank correlation coefficient formula

Part 5: Time series analysis

- ▶ Time series analysis and trends
- ▶ Calculating seasonal variations

Part 6: Introduction to probability

- ▶ Concept and rules of probability
- ▶ Conditional probability and expectation

Part 7: Further probability

- ▶ Binomial, Poisson and Normal distribution
- ▶ How to apply Binomial, Poisson and Normal distribution techniques to solve business problems
- ▶ The validity of Binomial, Poisson and Normal distribution techniques in relation to modern business practices

Part 8: Hypothesis testing

- ▶ Concept of hypothesis testing

- ▶ Applying hypothesis concepts to a given situation
- ▶ The importance of hypothesis testing for organisational decision making

Part 9: Introduction to functions and graphs

- ▶ The use of linear and quadratic functions
- ▶ The use of differentiation for simple functions
- ▶ The relevance of these in relation to organisational decision making

Part 10: Introduction to Matrices

- ▶ The use of matrices from a business perspective
- ▶ Identifying the structure and data within a matrix
- ▶ Applying arithmetic operations on matrices
- ▶ What is meant by a matrix
- ▶ How matrices can be added and subtracted
- ▶ The meaning of the determinant of a matrix
- ▶ Applying matrix principles to given situations

Part 11: Introduction to Algebra

- ▶ Algebraic notations in the context of given situations
- ▶ Applying Algebra to different situations and contexts
- ▶ Assessing the importance of Algebra for decision making

Part 12: Indices

- ▶ Laws of indices
- ▶ Applying the laws of indices to given situations
- ▶ The use of scientific notations in given situations

Part 13: Introduction to algebraic expressions

- ▶ Applying algebraic principles to given situations
- ▶ Simplifying algebraic expression for given situations
- ▶ Assessing different algebraic expression for given situations

Part 14: Solving equations

- ▶ Linear equations
- ▶ Simultaneous equations
- ▶ Quadratic equations

Find out more at:

Part 15: Introduction to sequences and series

- ▶ The process of sequences
- ▶ Arithmetic progressions (Gordon Growth model)
- ▶ Applying sequences and series to a given situation

Part 16: Functions

- ▶ The meaning of function
- ▶ The notation used to write functions
- ▶ Applying rule of functions to given situations

Part 17: Graphs of functions

- ▶ Plotting coordinates on the x-y plane
- ▶ How to draw a graph of a function
- ▶ Applying graph functions to a given situation

Part 18: The straight line

- ▶ Special properties of straight line graphs
- ▶ Tangent and gradient of a curve
- ▶ Straight line method

Part 19: The exponential and logarithm functions

- ▶ Exponential expressions and function
- ▶ The use of logarithm
- ▶ Applying exponential and logarithm to given situations

Part 20: Introduction to Vectors

- ▶ The meaning of scalar and a vector
- ▶ How vectors can be added and subtracted
- ▶ Applying the principles of vectors to given situations

Part 21: Techniques of differentiation

- ▶ The concept of differentiation of a function
- ▶ Illustrating and explaining the product, quotient and chain rules of differentiation

Find out more at:

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