

Quantitative Methods for Business

Intended Module Learning Outcomes

On successful completion of this module learners will be able to:

1. Identify the source of a quantifiable problem, recognise the issues involved and produce an appropriate action plan
2. Distinguish between different mathematical techniques and applications
3. Translate a problem into a simple mathematical model to allow easier understanding and to aid problem solving
4. Extrapolate from data the important trends in order to forecast as accurately as possible
5. Employ appropriate mathematical tools to solve problems
6. Calculate and interpret numerous statistical values and appreciate their value to the business manager
7. Demonstrate an ability to apply statistical process control
8. Carry out a simple sample survey, analyse the results and present the findings to the class.

Module Objectives

First year degree learners come from very diverse backgrounds. Some have studied mathematics, quantitative methods or statistics to a high academic level, while others have specialised more in calculus, algebra, etc. Applications of mathematics will build on learners' prior learning and develop their appreciation of how important mathematics is as a problem solving tool in all aspects of business and as a management aid in hospitality.

It is recognised that these learners are unlikely to pursue careers in mathematics; however they will be exposed through research or during further studies to the results of statistical tests. This module introduces and explains these concepts to learners so that they can interpret the results of statistical tests and can perform simple statistical tests themselves.

This module approaches each topic using a three-pronged approach.

- Firstly the applications of the topic are explored and learners are encouraged to examine where the material would be useful in a work environment.
- Having sown the seeds of interest the topic material is covered using examples and other student centred approaches
- Thirdly a case study is provided incorporating real life examples of how the techniques have been applied.

This approach to each topic creates a more open learning environment for the learners, and facilitate the deeper development of their analytical skills.

This module emphasises the application of quantitative techniques rather than the theory of the topics covered. Student feedback often refers to the abstract nature of quantitative techniques and the dis-connect between their other modules and this subject. This is understandable as often mathematics is taught as a generic subject and is not sufficiently tailored to hospitality students.

Although the evolution of mathematical techniques is slow, this module introduces learners to the latest applications of these techniques. Emphasis is on areas of mathematics, which are used in industry such as quality control charts. Where possible excel is used so that learners complete this module with a working knowledge of the mathematical functions available on excel.

Module Curriculum

Background to quantitative methods

- Stages in solving problems
- Drawing graphs

Data collection and description

- Collection techniques
- Presenting data using graphs and numbers
- Index numbers

Solving business problems

- Calculations with money, investment appraisal, sinking funds, annuities.
- Regression, correlation, time series data and forecasting

Business statistics

- Probability distributions
- Using samples in business
- Hypothesis testing

Business problems with uncertainty

- Controlling stock
- Planning projects and networks.