

BN1105 – QUANTITATIVE TECHNIQUES

Module Number: BN1105

Module Title: Quantitative Techniques

Number of Aston Credits: 10

Total Number of ECTS Credits: 5
(European Credit Transfer)

Staff Member Responsible for the Module:

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Availability: Please see office hours on door or group administrator, John Morley, ABS266, Extension 3236

Other Staff Contributing to the Module:

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Email: TBA

Availability: Please see office hours on door or group administrator, John Morley, ABS266, Extension 3236

Pre-Requisite(s) for the Module: None

Module Learning Outcomes:

Upon successful completion of the module you will be able to:

- Demonstrate basic skills in the formulation and solving of mathematical models of simple business situations
- Draw and interpret graphs and charts of functions and statistical data
- Identify appropriate statistical methods and apply them to the collection and analysis of business data
- Calculate the probability of an event using the rules of probability

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Module Content:

Basic Mathematics and Basic Statistics to provide you with a firm grounding in basic algebra and in the main techniques for summarising data and modelling probability.

- Week 1 Algebraic rules and notation. Linear equations.
- Week 2 Quadratic equations, plotting and using graphs.
- Week 3 Simultaneous linear equations.
- Week 4 Summation of series. Compound interest and present value.
- Week 5 Logarithms and exponential functions.
- Week 6 Summarising statistical information. Populations and samples.
****Coursework quiz to be completed by Friday****
- Week 7 Summary statistics (Measures of location and dispersion).
- Week 8 How to model uncertainty; basic concepts of probability. Random variables and probability distributions. Expected values.
- Week 9 Introduction to regression and correlation.
- Week 10 Introduction to time series and forecasting.
- Week 11 Revision lecture.

International Dimensions:

Data from international sources are used where appropriate

Corporate Connections:

Where possible, examples used are from a company context.

Links to Research:

The module covers basic mathematical and statistical principles discovered centuries ago and as such it is not connected to any ongoing research in the area. Research in improving learning and teaching these important concepts is however closely followed and the module is continuously updated based on evidence from current research on learning and teaching as well as on the feedback on the module obtained from the students in previous years.

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Learning and Teaching Rationale and Methods:

a) Method of Teaching - You are expected to:

- i. attend one lecture per week and one tutorial every other week
- ii. make full use of course notes and other instructional materials
- iii. complete the tutorial sheet provided in Blackboard VLE
- iv. actively participate with questions and answers in module forum

At the beginning of the term, a diagnostic test will be used to stream students with Mathematics to GCSE standard. Those of you with weaker quantitative skills will be required to attend the bi-weekly revision sessions in addition to regular bi-weekly tutorials.

You are all advised that confidence in manipulation of numerical data and equations can only be gained through practice and further help can be obtained from the Maths Centre located in the Library building. For further information about the Maths Centre and the services they offer please visit <http://www1.aston.ac.uk/current-students/academic-support/lcd/maths-centre/>

b) Composition of learning hours is roughly along the lines shown below:

	Students with stronger quantitative background	Students with weaker quantitative background
Contact and directed learning		
Lectures & Tutorials	16 hours	21 hours
Examination	2 hours	2 hours
Indirect learning		
Coursework preparation	10 hours	10 hours
Forum participation	10 hours	5 hours
Reading	18 hours	18 hours
Further practice and study	20 hours	20 hours
Exam revision	24 hours	24 hours
Total	100 hours	100 hours

Ethical Approval:

This module does not require any primary research and no ethical approval will be necessary.

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Assessment and Feedback Rationale and Methods:

The assessment is via a two-hour open book Examination (75%), two short answer pieces of Coursework (10% + 10%) and continuous participation through the module Discussion Board and through any live sessions via Blackboard that may be scheduled during the term time (5%).

The first Coursework (10%), to be completed within the Blackboard environment, will enable you to gauge your progress since the diagnostic test, and is of a similar format to the weekly tutorial quizzes also available in Blackboard. Weekly tutorial online quizzes do not count towards final mark but they will give you an excellent opportunity to get an instant feedback and suggestions on how to do the question correctly when a wrong answer is provided. They will also help you prepare to be comfortable for the assessed coursework, which will be taken within the same environment. Upon completion of the assessed coursework you will be provided with an instant grade but without any feedback as to which of your answers were incorrect. This coursework must be completed by noon on Friday - Week 6.

The second Coursework (10%), to be completed within the Blackboard environment, will enable you to gauge your understanding of basic concepts and processes used in solving mathematical and statistical problems. Just like with the first coursework, upon its completion you will be provided with an instant grade without any feedback as to which of your answers were incorrect. For both pieces of coursework, you will be able to get full feedback on your performance if you send an email request to any of your lecturers. The second coursework must be completed by noon on Wednesday – Week 11.

Continuous participation in module forum (5%) is intended to facilitate cooperative learning through the module Discussion Board (Blackboard) where you will be able to ask questions (when you need help in understanding any specific components or parts of the solution process), answer questions (when you know the answer to the questions being asked and you want to take a challenge in making things clear to the person asking the question) and/or comment on any answers given (when you think that the answers already given can be even further improved or clarified). Only those postings (whether questions, answers or comments) that are relevant to the material covered in lectures and tutorials will count towards the grade. The main purpose of the forum is to provide another source of help to those of you who need extra support but also to engage and encourage those of you with an already strong background into one of the best ways of solidifying your knowledge, which comes through teaching, tutoring and explaining learned concepts to others.

The open-book Class Test will assess whether you have understood the key techniques and can apply them to relevant examples set within a plausible business context. Students are encouraged to utilise lecturer office hours to obtain more detailed feedback and advice.