

Module Handbook

Module Title: Business Information Analysis

Module Code: BB4301

Lecturer

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MODULE SUMMARY (*INDICATIVE*)

This module is an introduction to the mutually dependent business topics of mathematics and information technology. It provides motivation for the use of these topics in business problem solving, and emphasizes their need for one another. That is, these days one would not use mathematics to solve a business problem without the aid of technology, and equally important one cannot efficiently or effectively use IT without mathematics. The module will be delivered using a problem-centric approach. The students will be required to design and create models using information technology to solve business-related problems.

AIMS (*DEFINITIVE*)

- To enable the understanding of how information technology and mathematics are essential tools in business problem-solving
- To appreciate, understand and use the mutual dependency of mathematics and information technology in solving business problems
- To familiarize students with the language of mathematics and to help them appreciate how an understanding of various inter-related mathematical topics is essential in business
- To familiarize students with a range of technology (both internet and non-internet based) and to help them appreciate how an understanding of their collective use is essential in business and in supporting business problem-solving
- To increase the confidence of students, so that they are willing and able to communicate using information technology and mathematics

LEARNING OUTCOMES (*DEFINITIVE*)

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

- understand and communicate using computing terminology and fundamental mathematical abstractions, and manage their own computing environment
- describe how business organisations use IT and mathematics in order to function more effectively and sustainably
- model and analyse data and information using appropriately chosen technology, such as web pages, spreadsheets or databases
- discuss emerging trends or concerns in technology, such as Web 2.0, cloud computing and accessibility

Assessment

The coursework is:

- Individual take-away written assignment (50%)
This project will be submitted at 9am on Thursday, 17 March 2016.
- In-class tests (50%)
There are five in-class tests in the weeks beginning:
19 October 2015, 16 November 2015, 7 December 2015, 1 February 2016 and 29 February 2016.

Note: None of the tests will be rescheduled so it is your responsibility to attend each test.

Note: You need to achieve a mark of 40% or more overall to pass the module.

Required Reading

Mathematics for Business and Information Systems, Dan Russell (available from StudySpace).

Various course material will be available online via StudySpace.

The library has several books on basic mathematics covering sets, relations and functions, discrete mathematics books covering logic, and several books on statistics including Statistics for Business and Economics by Anderson, Sweeney and Williams and Introduction to Business Statistics by Kvanli.

Use the online library search software [OPAC](#) to find these books, and read a selection to support the lecture programme.

Teaching and Learning Strategy (Indicative)

Each week the students will receive four hours of interactive sessions.

Interactive Sessions	88 hours
Independent Study	212 hours

Teaching Plan

This teaching plan is provisional and thus subject to change where required.

Teaching Block 1

Week	Topics
Week 1	<i>Motivation for learning mathematics and IT in harmony</i>
	Mathematics use in Business and its dependence on IT. Introduction to spreadsheets and their dependence on mathematics, Introduction to project 1 and assessment.
Week 2	<i>Introduction to Descriptive Statistics and Recording Data in a Spreadsheet</i>
	Types of data and how they may be analysed Questionnaire Design
Week 3	<i>Frequency Distributions and Application in a Spreadsheet</i>
	Types of frequency distribution and generating them in a spreadsheet
Week 4	<i>Analysing Quantitative Data: Measures of Central Tendency</i>
	The three Ms Test 1

Week	Topics
Week 5	<i>Analysing Quantitative Data: Measures of Dispersion</i>
	Variance, standard deviation Outliers
Week 6	<i>Descriptive Statistics</i>
	Summarising data – importance to business Measures of central tendency and variability Importance of sets and functions Business applications
Week 7	<i>More Statistics</i>
	Bayes theorem and importance when using survey information Test 2
Week 8	<i>Introduction to Sets and Databases</i>
	Set definition, operations on sets, Venn diagrams Database table definition and association sets Creating tables

Week 9	<i>Querying a Database 1</i>
	Operations on sets, Venn diagrams continued Subsets and Pascal's Triangle Projection queries
Week 10	<i>Querying a Database 2</i>

	Selection queries Introduction to relations and functions Representing relations as cartesian products
Week 11	<i>Review</i> Review of teaching block 1 and test 3

Teaching Block 2

Week	Topics
Week 1	<i>Querying a Database 3</i> Multiple tables Cartesian product and joins Functions and their use in application software
Week 2	<i>Predicate Logic</i> Boolean values Propositional logic Predicates as Boolean-valued functions
Week 3	<i>Application of Predicates in Spreadsheets and Databases</i> Types of frequency distribution and generating them in spreadsheets and databases
Week 4	<i>Probability Theory and HTML 1</i> Events and probability function Additive rule of probability HTML 1

Week	Topics
Week 5	<i>Probability Theory and HTML 2</i> Mutual exclusivity and statistical independence of events Bayes Theorem HTML 2
Week 6	<i>Probability Distributions and HTML/CSS</i> Random variables Probability distributions as relative frequency distributions CSS 1
Week 7	<i>Probability Distributions and CSS</i> Named distributions and their characteristics CSS 2
Week 8	<i>Analysing Probability Distributions / Redesigning a Website</i> Expected values
Week 9	<i>Open Source Software and TCP / IP</i>

Week 10	<i>DNS and HTTP</i>
Week 11	<i>Review and Examination Information</i>