

BNM819 Advanced Spreadsheets & Databases

Academic Year 2012/13

Number of Aston Credits: 15

Number of ECTS Credits: 7.5

Staff Member Responsible for the Module:

Paul Bocij, Operations & Information Management

ABS Building, Room 258, Extension: 5278

Email: pbocij@aston.ac.uk

Availability: Please see office hours on door, use Web Appointment Scheduling System (WASS)

Or contact the Operations and Information Group Administrator, John Morley, ABS266, Email: j.p.morley@aston.ac.uk, Extension: 3236

Pre-requisites for the module:

None

Mode of Attendance:

On Campus

Module Objectives and Learning Outcomes:

The spreadsheet package is one of the most important tools available to a business manager. However, few people receive the knowledge and training needed to use spreadsheets *efficiently* and *effectively* in their daily work. The modern spreadsheet package is much more than a sophisticated calculator. Skilled users can create complete applications capable of working across the entire organization. A package such as Microsoft Excel has powerful data processing capabilities that rival those of a dedicated database system. It can even harness the power of the Internet to capture, process and present business intelligence.



The spreadsheet also holds a very important position as a research tool. An essential skill for any business researcher is the ability to store, organize, analyse and present data in different ways. In many cases, the spreadsheet may be the only tool needed but even if a more specialized package is used, the spreadsheet will invariably be used to prepare the data for further examination.

In this module students will acquire a wide range of knowledge, skills and techniques that will enable them to develop their own spreadsheet applications. No prior knowledge is assumed and the module will support further study on the Enterprise Systems and Business Analysis pathways.

Over a number of lectures and practical sessions, we will move from basic techniques (e.g. how to measure and analyse intangibles) through to more sophisticated applications (e.g. how to create a dashboard).

The module also looks at the use of enterprise-class database systems, using industry-standard Structured Query Language (SQL) that ensures the skills acquired are portable across systems and even international boundaries. An emphasis is placed on skills that complement other disciplines or that support the use of tools such as Microsoft Excel and SPSS. Some of the areas covered will include data cleansing and data interrogation. Such skills support the study of topics such as data mining or business intelligence, as well as providing useful tools and techniques that can help students analyse research data.

As a whole, the module emphasises the knowledge and skills needed to develop solutions to a professional standard. This gives the module a strong vocational element, taking students from theory to application, that is, from “knowing” to “doing”.

Summary of module objectives:

- > To equip students with knowledge, skills and techniques that will:
 - > enable them to make efficient and effective use of spreadsheets and databases in their daily work
 - > enable them to use spreadsheets and databases to support their research
 - > support further study within the MSc ISBA programme

Summary of specific learning outcomes. By the end of the module, students will be able to:

- > Explain concepts and terminology related to spreadsheets and databases
- > Understand and apply data modelling/design techniques such as normalisation, data flow diagrams and entity relationship models.
- > Identify, select and apply a range of techniques in order to prepare data for analysis (data cleansing, import, data conversion, etc.)
- > Select and apply a wide range of techniques in order to analyse a variety of business decisions
- > Design and develop simple custom/bespoke information systems using a tool such as MS Excel in combination with other tools such as SQL Lite



- > Design and produce worksheets in a structured manner, including style guide, navigation system and other features needed for ease-of-use and ease of maintenance
- > Select and apply more sophisticated functions/features such as macros and Visual Basic for Applications

The module is also intended to contribute to the following programme level outcomes. Note that the module may also contribute to additional outcomes not listed here.

Knowledge and understanding

A1 The core functions of a business and how information systems/ technology supports the business and its operations

A2 How to run projects and develop systems which meet the needs of the business and the client

A3 Tools, techniques and methods for analysing business and system requirements

A4 Theoretical principles, models and methodologies for developing business systems and managing IS projects

A5 Competencies and skills which are valued by employers recruiting for careers in related fields, and knowledge of how to demonstrate these competencies

Intellectual skills

B1 Critically assess, examine and apply information acquired from various sources, published and unpublished, formal and informal

B2 Generate data and information for the purpose of analysing business and system requirements

B4 Base decisions upon firm evidence and analysis

B5 Initiate and carry out problem solving enquiries

Professional skills: Generic

C3 Interpreting and meeting business requirements

Professional skills: Specific

C5 Gain experience of business analysis techniques for the purposes of improving business processes and developing business systems



Transferable skills

D1 Proficiency in using IT for personal effectiveness and collaborative technologies for knowledge work

D2 Time management and organisational skills

D3 Communication skills, including written and oral communication and presentation skills

D8 Career planning and ability to recognise and demonstrate the competencies which enhance employability

Module Content:

The areas covered may change slightly in response to the group's specific needs, so this list should be taken as indicative content.

- > The role of spreadsheets: history, their use in business, basic capabilities, terminology
- > Designing worksheets: layout of data, commenting, audit information, house styles
- > Designing worksheets: protecting cells, hiding data, repeating headings, formatting cells, notes
- > Designing worksheets: representing problems, converting intangibles to tangibles, validating data, trapping errors, stepwise calculations
- > Getting data: importing data from the Internet and other sources, converting data
- > Data analysis: data cleansing, grouping data, extracting data, simple statistics and tests, what if?, summaries
- > Creating applications: user interfaces, Visual Basic for Applications (VBA), user forms, navigation systems, simple programming techniques (loops, message boxes, conditions, etc.)
- > Databases concepts and techniques including normalisation, data flow diagrams and entity relationship models.
- > Designing and building databases.
- > Structured Query Language and its use as a means of manipulating data.

Corporate Connections:

- > The MSc ISBA itself has been developed with the support of corporate partners.
- > The module will reflect current trends and professional practice as informed by various bodies (British Computer Society, employers, etc.)
- > The assessment for the module will be based around a realistic task that may involve an organisation the student is familiar with.

International Dimensions:

The methods, concepts, techniques and technologies covered within the module are principally international in nature and are applicable to Europe, the United States, Africa, Australasia and the Far East.

Contribution of Research:

Some of the techniques and concepts presented are intended to help students prepare and analyse data. This will support their work activities but will also support further study on the programme. The skills acquired will also encourage students to conduct research since they will have the skills needed to analyse their own research data.

Some of the pedagogical methods that will be used are based on research carried out by the module leader e.g. the use of formative assessment as a learning and diagnostic tool.

Ethics, Responsibility & Sustainability:

The module incorporates issues related to corporate/social responsibility, data protection and personal privacy by emphasising key principles, such as the need to ensure the accuracy of data. While sustainability is not addressed explicitly, it is embodied within the concepts and techniques covered by the module, for instance by encouraging the creation and use of electronic dashboards above the production of printed reports.

Method of Teaching:

There will be 10 lectures and 10 tutorial sessions. Students will be given additional reading and tasks for the weeks they do not attend a tutorial. Tutorials will involve the completion of highly structured tasks designed to reinforce the material covered in lectures, demonstrate key techniques and support further learning.

This version of the module is based on a 15-credit model. More or less time may be needed depending on the needs of students.

Method of Assessment and Feedback:

The module will be assessed by individual coursework (100%). Students will also complete a number of structured tasks that collectively form a portfolio of materials that can be used to document their knowledge and skills. The portfolio tasks are differentiated

so that they can be attempted by all students, irrespective of prior knowledge/experience. The tasks progressively build the skills and knowledge of students and provide a foundation for further work/study. The coursework involves preparing and analysing a large body of data in the same way one would expect to in industry.

Students receive (informal) individual feedback during practical sessions. They also receive (formal) feedback from their peers and the tutor as each portfolio task is completed. Additional individual feedback will also be given on the coursework.

Learning Hours:

Contact Hours - Lecture	10
Contact Hours - Tutorial	20
Directed Learning	30
Portfolio Work	30
Private Study	20
Assessment (Assignment)	40
Total	150

The following essential and recommended readings are subject to change. Students should not therefore purchase textbooks prior to commencing their course. If students wish to undertake background reading before starting the course, many of the chapters/readings are available in electronic form via on-line library catalogues and other resources.

Essential Reading:

There is no set text for this module. Students are not required to purchase any books because substantial notes, web links, tutorials and other materials will be provided over the course of the module.

Indicative Bibliography:

Students may find some of the following books useful. One book offering particularly good value is:

Harvey, G (2010) Excel 2010 All-in-One For Dummies. Indianapolis, IN, USA: John Wiley & Sons

Other useful titles include:

Bluttman, K. & Aitken, P. (2005). Excel Formulas and Functions for Dummies. Indianapolis, IN, USA: John Wiley & Sons

Walkenbach, J. (2010). Excel VBA Programming for Dummies. Indianapolis, IN, USA: John Wiley & Sons

Winston, W. (2011). Microsoft Excel 2010: Data Analysis and Business Modeling. 3rd Edition. Microsoft Press

Walkenbach, J. (2010). Excel 2010 Bible. Indianapolis, IN, USA: John Wiley & Sons

Jelen, B. (2010). Microsoft Excel 2010 in Depth. QUE

Bluttman K. & Aitken P. (2010) Excel Formulas and Functions For Dummies. Indianapolis, IN, USA: John Wiley & Sons Inc

Nelson, S. (2002) Excel Data Analysis for Dummies. Indianapolis, IN, USA: John Wiley & Sons Inc

Taylor, A. (2011). SQL All-in-One For Dummies. Indianapolis, IN, USA: John Wiley & Sons Inc

Forta, B. (2004). Sams Teach Yourself SQL in 10 Minutes. Indianapolis, IN, USA: Sams