Unit 11: Business Data and Numerical Skills

Unit code	**F/617/8617**
Unit level	**4**
Credit value	**15**

Introduction

The ability to understand and analyse numerical data and information is an essential skill in coming to the right conclusions and making the right decisions in any industry. The knowledge of numbers and figures, understanding relationships between numbers and interpreting mathematical information are all key to building a strong skills profile. To succeed, business organisations must collect and analyse data that concerns customers, markets, competitors and business processes, to support business decision making.

In this unit, students will be introduced to the knowledge and skills needed to be able to support the collection, storage and interrogation of data for business decision making. They will explore methods of collecting data, both manually and online, and the techniques needed to interpret this quantitative and graphical data to produce information to assist business decision making. Students will also explore the numerical analysis techniques and digital platforms required to generate management information. They will gain the knowledge and skills required to present findings, conclusions and recommendations to a business audience.

The skills and knowledge gained from the completion of this unit will support the higher education study of business and academic research projects.

Learning Outcomes

By the end of this unit, a student will be able to:

LO1 Collect research data and apply business models for business decision making

LO2 Apply techniques to interpret data

LO3 Assess digital platforms for collection, storage and analysis of data and presentation of business information

LO4 Present information in appropriate formats to meet management needs.

Essential Content

LO1 Collect research data and apply business models for business decision making

Sources of business data:

Different primary data sources e.g. observation, experimentation, e-marketing research, focus groups, panels, field trials, piloting, surveys and methods, e.g. face-to-face, postal, email, online, telephone.

Appropriateness of each method, e.g. fitness for purpose, cost, accuracy, time, validity, response rate.

Secondary data sources:

- internal sources, including data records, loyalty schemes, electronic point of sale (EPOS), website monitoring, e-transactions, accounting records, production information, sales figures, sales personnel
- external sources, including internet, government statistics, printed materials, university research, company reports, trade journals, specialist agencies, e.g. Mintel and Dun & Bradstreet.

Validity and reliability of data:

The advantages and disadvantages of qualitative and quantitative approaches to research.

Criteria for selection of data, e.g. checking validity, source accuracy, bias, subjectivity, timeliness/currency.

Business models:

Different business models to support decision making, e.g. Porter's Five Forces model, 5C Analysis, Ansoff Matrix.

LO2 **Apply techniques to interpret data**

Apply, interpret and evaluate data presented in quantitative format:

Quantitative techniques: cross tabulation, trend analysis, gap analysis. Representative values: arithmetic mean, median, mode.

Range, inter-quartile range.

Measures of dispersion: standard deviation.

Calculation: use of quartiles, percentiles and cumulative frequency. Interpretation of correlation coefficient, times – series and trends.

Apply, interpret and evaluate data presented in diagrammatic and tabular formats:

Interpretation of pictograms, pie charts, bar charts, frequency curves, histograms, line graphs, scattergrams and tables.

LO3 **Assess digital platforms for collection, storage, analysis of data and presentation of business information**

The business audience:

Use of management information systems to meet strategic, tactical and operational business purposes and needs.

Generating financial tools, including net present value, discounted cash flow and internal rates of return.

Maintenance and security of stored data:

Storage of data and legal and regulatory requirements concerning the collection, storage and distribution of data.

Planning for adverse effects including methods used to back up stored data, locations and methods available for back up.

Security and confidentiality of data, including methods of distribution, transfer and storage of data.

Cyber security: network threats and vulnerabilities, protecting and preventing attacks and mitigating risk.

LO4 **Present information in appropriate formats to meet management needs.**

Present findings, conclusions and recommendations in appropriate formats to meet strategic, tactical and operational business purposes and needs:

Different written report formats, e.g. formal or informal, and their appropriateness for audience and content.

Different types of presentations including choice and use of appropriate software to include textual, graphical and pictorial elements.

Use of handouts and summary sheets.

Use of tables, graphs, charts, diagrams:

Creation of pictograms, pie charts, bar charts, frequency curves, histograms, line graphs, scattergrams.

Making use of scattergrams or scatter (XY) graphs and linear trend lines: extrapolation for forecasting (reliability).

The use of tables to simplify and rationalise the presentation of data to aid understanding of the information within that data.

The use of appropriate formats, e.g. one-way tables, two-way tables.

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Collect research data and apply business models for business decision making		**D1** Critically analyse the validity and reliability of the outcomes of the research.
P1 Conduct primary and secondary research to support business decision making. **P2** Apply a range of different business models to support decision making outcomes.	**M1** Analyse primary and secondary research to appropriately support business decision making and outcomes.	
LO2 Apply techniques to interpret data		**D2** Critically analyse data sets given in quantitative and diagrammatic forms to formulate valid conclusions.
P3 Apply quantitative techniques to interpret given data sets. **P4** Illustrate in diagrammatic forms different ways in which data can presented.	**M2** Analyse data sets given in quantitative and diagrammatic forms.	
LO3 Assess digital platforms for collection, storage, analysis of data and presentation of business information		**D3** Justify the methods chosen to collect, store, analyse data and present information.
P5 Examine appropriate digital platforms to collect, store and distribute data for business decision making. **P6** Discuss the legal and regulatory framework relating to the collection, storage and distribution of data.	**M3** Evaluate the ways data can be stored and distributed securely, ensuring confidentiality.	

Pass	Merit	Distinction
LO4 Present information in appropriate formats to meet management needs.		
P7 Compose a written report to present findings, conclusions and recommendations from research collection. **P8** Formulate a presentation to convey findings, conclusions and recommendations from research.	**M4** Discuss appropriate use of tables and selected graphical visuals in the report and presentation to support the communication of findings, conclusions and recommendations.	**D4** Evaluate how the formats selected and the use of textual, tabular and graphical visuals met the needs of the selected business audience.

Recommended Resources

Textbooks

DAVIS, G. and PECAR, B. (2021) *Statistics for Business Management.* Sage Publications.

NEWBOLD, P., CARLSON, W. and THORNE, B. (2019) *Statistics for Business and Economics.* 9th Ed. Harlow: Pearson.

SAUNDERS, M.N.K., THORNHILL, A. and LEWIS, P. (2019) *Research Methods for Business Students.* 8th Ed. Harlow: Pearson.

Websites

www.bbc.co.uk	BBC Skills Maths – Graphs (General reference)
www.statstutor.co.uk	Stats Tutor (General reference)
www.ukdataservice.ac.uk	UK Data Service Student Resources (Resources)

Links

This unit links to the following related units:

Unit 33: Marketing Insights and Analytics

Unit 42: Statistics for Management

Unit 45: Business Data Analytics and Insights