Unit title:	Analysing Data
SQA code:	J6TR 48
SCQF level:	8
SCQF credit points:	11

History of changes

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Unit template: January 2022

Unit title:	Analysing Data (SCQF level 8)

Unit purpose

This is about individuals applying appropriate data analytics and statistical techniques on available data to discover new trends, patterns, and relationships. It also involves delivering insights to address business problems and support decision-making.

Learning outcome

To understand business requirements and constraints and perform analytics to find trends, patterns, and new insights in data to address business problems in line with organisational requirements.

Performance requirements	**Knowledge and understanding**
1. Selecting and applying descriptive, inferential, and predictive statistics to identify trends and patterns in data. 2. Estimating parameters and confidence intervals of the underlying distribution from which observed data are drawn. 3. Performing statistical hypothesis tests, regression, and analysis of variance of data. 4. Using industry standard statistical computer packages to perform statistical analyses. 5. Developing solutions independently and through collaboration with colleagues in other functions to provide outcomes and guidance. 6. Using scrum delivery methodology and ceremonies to plan and execute sprints to deliver work. 7. Developing software code to automate data analytics processes. 8. Applying cross checking techniques for identifying faults in data results.	1. The core principles of data analytics. 2. The basic concepts and techniques in statistics including sampling distributions, estimators, interval estimation, hypothesis testing, regression, and analysis of variance. 3. How to apply descriptive, inferential, and predictive statistics. 4. How to formulate appropriate statistical hypotheses. 5. Industry standard statistical programming tools and how to apply them. 6. How to carry out hypothesis tests using statistical software packages. 7. How to frame applied problems as machine learning tasks, identifying appropriate methods. 8. How to compare alternative machine learning methods for a given task. 9. The industry standard machine learning algorithms, how they work using a step-by-step approach, and how to apply them in practice. 10. The potential to use automation for analysis tasks. 11. How to audit data analysis results 12. How to evaluate results using data analytical tools. 13. How to validate the results of analysis using standard techniques to identify any faults in data results and to maintain data quality. 14. How to critically analyse, interpret and evaluate complex information from diverse datasets.

Additional information about the unit

Assessment (evidence) requirements:

There should be a mix of **product**, **performance** and **knowledge** evidence for this unit.

The evidence should be produced as a by-product of normal work activities. The evidence should relate to the learner's work role. For example, the evidence relating to the learner's ability to select and apply descriptive statistics should relate to descriptive statistics relevant to the learner's job.

Examples of product evidence include completed analyses carried out by the learner and source (program) code that illustrates automation. An example of performance evidence is observation of the learner using industry standard statistical programming tools. An example of knowledge evidence is written evidence that the learner understands the principles of data analytics.

Most evidence should be sourced from routine work activities. However, simulation is permissible when it is not possible to produce all the required evidence in this manner. For example, some analyses may have to be evidenced using fictitious data if source data is confidential or high value.

Further guidance on the assessment (evidence) requirements for this unit, and other units, can be found in the Assessment Guidance document.

Guidance on instruments of assessment:

It is anticipated that most evidence will be generated as a by-product of routine workplace activities carried out as part of the learner's job role. However, there may be occasions when activities must be undertaken to satisfy specific performance requirements or demonstrate specific knowledge and understanding. For example, hypothesis testing may not normally be done by a specific learner in a specific job role.

In these circumstances, learners will be required to acquire the new knowledge and understanding, and apply this to a relevant work task. In exceptional circumstances, it is permissible for learners to undertake a simulated task using an artificial dataset to produce the required product or performance evidence.

It may be possible for one type of evidence to imply another. For example, a completed analysis (product evidence) that involves hypothesis testing (assuming the test is done correctly) may provide evidence of the learner's understanding (knowledge evidence) of hypothesis testing. Combining assessment (evidence) in this way is encouraged. However, it is vital that each piece of evidence is clearly related to performance requirements and knowledge and understanding.

Professional recorded discussion and / or personal reflective statements can be used to demonstrate knowledge and understanding.

Additional information about the unit (continued)

Details of the relationship between the unit and relevant National Occupational Standards (if appropriate):

This unit is related to the following National Occupational Standards:

ESKITP802301: Assist in Delivering Routine Data Analysis Studies.

ESKITP802401: Design and Implement Data Analysis Studies.

ESKITP803301: Assist in Delivering Data Driven Business Insights.

https://www.ukstandards.org.uk/

Details of the relationship between the unit and other standards or curricula (if appropriate):

Assessment requirements specified by a sector or regulatory body (if appropriate):

Please refer to the Overarching Assessment Strategy for Competence-based Qualification and the associated sector-specific guidance relating to Digital Technology (Diploma in Digital Technology at SCQF Level 8) produced by SQA Accreditation (2022).

Meta-skills signposting:

This unit aligns to the following meta-skills:

- Adapting
- Collaborating
- Communicating
- Creativity
- Critical thinking
- Curiosity
- Focusing
- Initiative
- Sense making