

Carry out a statistical research project in a public sector context

Level 5

Credits 16

Purpose This unit standard is for people who are employed in the public sector in positions where they are required to interpret statistical data relevant to a management, organisational or policy question in a public sector context and report the results of their research.

People credited with this unit standard are able to: plan and carry out a statistical research project; prepare and communicate a statistical research report; and evaluate the research project.

Subfield Public Sector Services

Domain Public Sector Core Skills

Status Registered

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Entry information It is recommended that candidates have at least 14 credits from Level 1 in the *Mathematics* domain; or demonstrate equivalent knowledge and skills.

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) Learning State (trading name of the Public Sector Training Organisation)

Accreditation and Moderation Action Plan (AMAP) reference 0121

This AMAP can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Special notes

- 1 *Data collection methodologies* may include secondary use of existing data sets; quantitative surveys or qualitative methods, such as listening to or interviewing respondents; observing behaviour; or examining written documentation, records, legislation, and case law. However, the report must contain some statistical analysis of the data collected.

- 2 Legislation relevant to this unit standard includes the Privacy Act 1993, Official Information Act 1982, State Sector Act 1988, Statistics Act 1975 and other relevant departmental acts.
- 3 Definition
Organisational requirements refer to instructions to staff on policy and procedures, which are documented in memo or manual format and are available in the workplace.
- 4 This unit standard must be assessed against a project undertaken in a non-simulated public sector workplace environment.

Elements and performance criteria

Element 1

Plan a statistical research project.

Performance criteria

- 1.1 The purpose of the research is specified, and specific research objectives developed are consistent with the purpose.
- 1.2 Research design and planning is practicable, consistent with the research objectives, and is in accordance with legal, ethical, and organisational requirements.
- 1.3 Research plan identifies the organisational context and outlines the research procedures to be used.

Range research procedures may include but are not limited to – the identification of information sources, data types and quality of data, sampling methods, statistical analysis methods, graphical and tabular presentation.
- 1.4 Research methodologies are selected and outlined to meet research objectives, provide information and data relevant to the research project, and achieve reliable and valid findings.

Range at least one appropriate statistical analysis is included from – confidence intervals for means or proportions, contingency tables and chi squared or other test for two categorical variables, parametric hypothesis test on two paired or independent groups (eg t-test), non-parametric hypothesis test on two paired or independent groups (eg Signed Rank, Mann Whitney U), linear relationships between pairs of numeric variables (eg correlation and regression), interpretation of time series or index numbers, other formal hypothesis tests, other parameter estimation with confidence intervals, and/or absolute or relative standard errors.

Element 2

Carry out a statistical research project.

Performance criteria

- 2.1 Information and data sources are determined in accordance with the research plan.
- 2.2 Research data is collected and collated in accordance with the research plan.
- 2.3 Research data is analysed and interpreted to make estimates, identify facts, issues, patterns, inter-relationships, trends, and to test hypotheses in accordance with the research plan.
- 2.4 Analysis and interpretation of research data is consistent with the information collected and research methodologies employed.
- 2.5 Research findings are evaluated and explained in relation to the specified research objectives.
- 2.6 Limitations of the research methodology and data are identified, including the quality of the data used, and the reliability and validity of research results.

Element 3

Prepare and communicate a statistical research report.

Range includes but is not limited to – title, background/introduction, research question(s), research plan/methods, legal or ethical issues, data (and associated quality issues), statistical analysis, results, conclusions/recommendations, further questions or research, references, any appendices if required.

Performance criteria

- 3.1 Research report produced is consistent with research objectives, provides timely and accurate analysis, and meets organisational requirements in terms of research standards.
- 3.2 Research report provides clear and accurate analysis of the information and data, and the recommendations and/or conclusions are supported by the research findings and relate to the research objectives and question.
- 3.3 Reporting of results of information analysis is logically ordered, concise and clear, incorporates predictions and assumptions, and identifies limitations.
- 3.4 Methods of presentation and reporting of research findings are appropriate for the research results and the needs of the recipients of the information, and meet organisational reporting and presentation standards.

Element 4

Evaluate the research project.

Performance criteria

- 4.1 Evaluation identifies strengths and weaknesses of the research methodology.
- Range may include but is not limited to – sampling design, response rate, imputation methods, assumptions made, methods of analysis.
- 4.2 Evaluation identifies strengths and weaknesses of the data.
- Range may include but is not limited to – data quality, statistical integrity, suitability for purpose.

Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Learning State (trading name of the Public Sector Training Organisation) qualifications@learningstate.govt.nz if you wish to suggest changes to the content of this unit standard.