



Australian Government

PSPSCI303A Undertake scientific/technological research

Revision Number: 3

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Modification History

Release	TP Version	Comments
3	PSP12V1	Unit descriptor edited.
2	PSP04V4.2.	Layout adjusted. No changes to content.
1	PSP04V4.1	Primary release.

Unit Descriptor

This unit covers the conduct of scientific or technological research under general direction with immediate guidance regarding methods and specific objectives. It includes confirming the research issue, employing a selected research methodology, carrying out the research and delivering the results.

In practice, undertaking scientific/technological research overlaps with other generalist or specialist work activities such as working effectively, acting ethically, using resources, organising information, working safely.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency. Together, performance criteria specify the requirements for competent performance. Text in ***bold italics*** is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Confirm research issue	1.1 Issue to be researched is confirmed and clarified with other researcher/s as relevant to the industry and the organisation's objectives. 1.2 Issues relating to intellectual property are identified and handled in accordance with organisational requirements. 1.3 Current and published information relevant to the research issue is located and analysed.
2. Employ selected research methodology	2.1 Research method/s and objectives are selected in consultation with other researcher/s in accordance with organisational policy and resource requirements. 2.2 Hypothesis is established and confirmed with other researcher/s as plausible, relevant and of benefit. 2.3 Tasks, risk management strategies and analytical techniques are confirmed in consultation with other researcher/s. 2.4 Research methodology is recorded in accordance with organisational requirements.
3. Carry out research	3.1 Resources to conduct the research are <i>sourced</i> in accordance with organisational policy and procedures. 3.2 Tasks are scheduled and carried out under general guidance in accordance with research methodology. 3.3 Research is monitored and data is collected and analysed in accordance with research plan. 3.4 Research results are discussed with other researcher/s and documented in accordance with organisational requirements. 3.5 Research report/s are prepared within specified timeframes in accordance with organisational requirements. 3.6 Reports are written clearly and concisely in styles suited to scientific and/or lay audiences in accordance with organisational requirements.
4. Deliver research results	4.1 Research results are provided to the organisation, to the scientific community and/or to the industry in accordance with organisational policy and procedures. 4.2 Intellectual property is protected in accordance with organisational requirements.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Skill requirements

Look for evidence that confirms skills in:

- carrying out research
- using problem solving techniques
- using technology for data input, analysis and preparation of reports
- interpreting and preparing reports containing scientific research information using a range of communication styles to suit different audiences and purposes
- responding to diversity, including gender and disability
- presenting research results tailored to different audiences such as local industry/scientific audience
- applying occupational health and safety and environmental requirements to working in a scientific/technological research environment

Knowledge requirements

Look for evidence that confirms knowledge and understanding of:

- a range of applicable research methodologies
- scientific process
- statistics (working knowledge)
- specialist area of expertise
- reporting requirements for scientific/technological research, requiring precision of expression and using a range of communication styles to suit different audiences and purposes
- public sector standards, legislation and organisational code of practice as they relate to work in a scientific research/technological environment
- public sector legislation including environmental and occupational health and safety requirements relating to scientific/technological research

Evidence Guide

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

Units to be assessed together

- *Pre-requisite* units that must be achieved prior to this unit: *Nil*
- *Co-requisite* units that must be assessed with this unit: *Nil*
- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:
 - PSPETHC301B Uphold the values and principles of public service
 - PSPGOV301B Work effectively in the organisation
 - PSPGOV302B Contribute to workgroup activities
 - PSPGOV307B Organise workplace information
 - PSPLEGN301B Comply with legislation in the public sector
 - PSPOHS301A Contribute to workplace safety

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit
- application of the Employability Skills as they relate to this unit (see Employability Summaries in Qualifications Framework)
- scientific/technological research conducted in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, procedures, guidelines and protocols
- research guidelines and methodologies relating to scientific/technological research
- industry information
- risk management strategies relating to scientific/technological research
- case studies and workplace scenarios to capture a range of different research situations

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions

likely to be encountered when undertaking scientific/technological research, including coping with difficulties, irregularities and breakdowns in routine

- scientific/technological research conducted in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people
- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- demonstration
- observation
- portfolios
- projects
- questioning
- authenticated evidence from the workplace and/or training courses

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in ***bold italics*** in the Performance Criteria is explained here.

Other researcher/s may include:

- research team leader
- senior researchers
- research team members

Current information may include:

- other research in progress locally, nationally and internationally
- recently published information
- unpublished information

Research methods may include:

- single experiment
- chain of experiments

Analytical techniques may include:

- statistical analysis
- sample analysis

Resources may include:

- human
- physical
- monetary
- design specifications
- technical manuals
- componentry
- radioactive samples

Sourcing resources may include:

- allocation from within the organisation
- allocation from external source/s

Documented may include:

- complete record to be held internally within the organisation
- preparation of research results for publication

Provision of results may include:

- internal reporting verbally and in writing
- articles in industry journals
- reports for scientific audiences
- reports for lay audiences
- presentations at seminars and scientific conferences

Unit Sector(s)

Not applicable.

Competency field

Government Science & Technology.