



Australian Government

MSL975017 Perform laboratory-based ecological techniques

Release: 1

MSL975017 Perform laboratory-based ecological techniques

Modification History

Release 1. Supersedes and is equivalent to MSL975017A Perform laboratory-based ecological techniques

Application

This unit of competency covers the ability to participate in laboratory investigations involving animals, plants and related environmental parameters. The animals or plants might be single specimens, parts of specimens or be in culture or under propagation. The investigations might also be part of experimental models that examine interactions of animals and/or plants and their environments. Investigations would generally relate to taxonomy, physiology and pathology, and would be oriented to scientific research, food production and manufacture, and to investigation of biological environments and ecosystems.

This unit of competency is applicable to laboratory technicians and technical officers working in biological, biotechnology and environmental industry sectors. It is expected that all work would conform to statutory and work health and safety (WHS) codes of practice. This unit of competency assumes that personnel perform tests and procedures under the close supervision of scientific staff and that the workplace will equip its workers with relevant animal handling skills should they be required. The unit does not cover procedures related to the handling of vertebrates that are subject to national and state/territory animal care and ethics regulations.

While no specific licensing or certification requirements apply to this unit at the time of publication, laboratory operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

MSL974006 Perform biological procedures

Competency Field

Testing

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1 **Process specimens and documentation**
 - 1.1 Check specimens and request forms for labelling and documentation before acceptance
 - 1.2 Log specimens, applying required document tracking mechanisms
 - 1.3 Dispatch specimens to referral laboratories as required
 - 1.4 Store specimens appropriately until required for testing

- 2 **Participate in the identification and classification of species**
 - 2.1 Record macroscopic and/or microscopic details of specimens to assist in their identification and classification
 - 2.2 Use taxonomic keys to assist in the identification and classification of species
 - 2.3 Perform laboratory analyses that can assist in identification and classification of species
 - 2.4 Preserve specimens for future reference
 - 2.5 Label preserved specimens for storage and reliable retrieval from collections

- 3 **Maintain viability and integrity of specimens during experimentation**
 - 3.1 Provide nutrients and environments to maintain viability of individual specimens and organisms being cultured or propagated
 - 3.2 Perform procedures and analyses to monitor the experimental environment
 - 3.3 Perform procedures and analyses to monitor the physiology of organisms in the experimental environment
 - 3.4 Adjust nutrient requirements and environmental conditions as indicated by monitoring data
 - 3.5 Report to supervisors data and phenomena that may risk viability of individual specimens or cultures
 - 3.6 Report to supervisors data and phenomena that are incompatible with the experimental design parameters

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| 4 | Integrate laboratory and field data | 4.1 | Locate field data relevant to the study or experiment |
| | | 4.2 | Ensure that field and laboratory data codes are matched for tracking, reporting and chain of custody requirements |
| | | 4.3 | Log field and laboratory data into information systems |
| | | 4.4 | Assist with writing reports of experiments and related field studies |
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| 5 | Maintain a safe work environment | 5.1 | Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other laboratory personnel |
| | | 5.2 | Minimise the generation of waste and environmental impacts |
| | | 5.3 | Ensure the safe collection of laboratory and hazardous waste for subsequent disposal |
| | | 5.4 | Care for and store equipment and reagents as required |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Standards, codes, procedures and/or workplace requirements

Standards, codes, procedures and/or workplace requirements include the latest version of one or more of:

- Australian and international standards covering the requirements for the competence of testing and calibration laboratories, laboratory safety and quality management
- national WHS standards and codes of practice, and national environmental protection requirements

- specific codes, guidelines, procedures and methods, such as animal welfare legislation and codes of practice, guide to physical containment levels and facility types, and Australian Quarantine and Inspection Service (AQIS) Export Control (Orders) Regulations
- workplace documents, such as standard operating procedures (SOPs), quality and equipment manuals, calibration and maintenance schedules, material safety data sheets (MSDS) and safety procedures, safety procedures to minimise contraction of zoonoses, laboratory schedules, workplace recording and reporting procedures, waste minimisation disposal protocols and environment protection procedures
- workplace procedures for labelling, preparation, storage, transport and disposal of samples and specimens
- validated and authorised test procedures

Communication

Communication includes interactions with one or more of:

- scientists
- field workers
- local government professionals or representatives of state/territory authorities, such as environmental protection agencies
- supervisors and managers (laboratory, quality and customer service)
- clients

Disposal of biohazardous wastes

Disposal of biohazardous wastes includes, but is not limited to, one or more of:

- collection for sterilisation by autoclaving (e.g. autoclaving of microbiological plates)
- appropriate storage (e.g. of waste containing radioactive isotopes)
- use of biohazard waste containers

Safe work practices

Safe work practices include, but are not limited to, one or more of:

- ensuring access to service shut-off points
- recognising and observing hazard warnings and safety signs
- labelling of samples, reagents, aliquoted samples and hazardous materials
- handling and storage of hazardous materials and equipment in accordance with labelling, material safety data sheets (MSDS)

and manufacturer instructions

- identifying and reporting operating problems or equipment malfunctions
- cleaning and decontaminating equipment and work areas regularly using workplace procedures
- using PPE, such as gloves, safety glasses, coveralls, gowns, hearing protection and safety boots
- using containment facilities (PCII, PCIII and PCIV physical containment laboratories), containment equipment (biohazard containers, laminar flow cabinets, Class I, II and III biohazard cabinets) and containment procedures
- following established manual handling procedures
- reporting abnormal emissions, discharges and airborne contaminants, such as noise, light, solids, liquids, water/wastewater, gases, smoke, vapour, fumes, odour and particulates, to appropriate personnel

WHS and environmental management requirements

WHS and environmental management requirements include:

- complying with WHS and environmental management requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time
- applying standard precautions relating to the potentially hazardous nature of samples
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health, where relevant

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>