

PML30104 – Certificate III in Laboratory Skills

Summary of Competency Units

PMLCOM300B - Communicate with other people

This unit covers the ability to receive and pass on written and oral messages, provide relevant information in response to requests within timelines and demonstrate effective interpersonal skills.

Status Core

Elements

- Receive and act upon instructions
- Receive and convey messages
- Demonstrate appropriate interpersonal skills
- Provide appropriate information

Prerequisites:

This unit of competency has no prerequisites.

PMLDATA200A - Process and interpret data

This unit covers the ability to record and store data, perform basic calculations of scientific quantities and present information in tables and graphs. The unit requires personnel to solve predictable problems using clear information or known solutions. Where alternatives exist, they are limited or apparent.

Status Core

Elements

- Record and check data
- Calculate simple scientific quantities
- Present data in tables, charts and graphs
- Store and retrieve data

Prerequisites:

This unit of competency has no prerequisites.

PMLOHS302A - Participate in laboratory/field workplace safety

This unit covers the ability to apply enterprise OHS policies and procedures dealing with the identification and control of hazards, working safely at all times, emergency response and contributing to the maintenance of workplace safety. It is expected that personnel will be provided with clear directions, information, training and appropriate supervision. Responses are restricted to a 'first response' approach, including the notification of appropriate enterprise personnel.

Status Core

Elements

- Identify, control and report OHS and environmental hazards
- Conduct work safely
- Follow incident and emergency response procedures
- Contribute to OHS in the workplace

Prerequisites:

This unit of competency has no prerequisites.

PMLORG301A - Plan and conduct laboratory/field work

This unit covers the ability to plan and complete tasks individually or in a team context. The tasks involve established routines and procedures using allocated resources with access to readily available guidelines and advice. Work plans may need to be modified with supervisor agreement to suit changing conditions and priorities.

Status Core

Elements

- Plan and organise daily work activities
- Complete allocated work
- Identify and resolve work problems
- Work in a team environment
- Update knowledge and skills as required

Prerequisites:

This unit of competency has no prerequisites.

PMLQUAL300B - Contribute to the achievement of quality objectives

This unit covers the development of a working knowledge of quality principles and their application in laboratory/field work.

Status Core

Elements

- Apply quality control procedures
- Contribute to quality improvements
- Maintain commitment to enterprise quality standards in own work
- Assist in maintaining customer relationships
- Update knowledge and skills as required

Prerequisites:

This unit of competency has no prerequisites.

PMLCAL400A - Perform standard calibrations

This unit covers the ability to calibrate test and measurement equipment without deviation in accordance with standard calibration procedures and documented test methods. These procedures/methods specify all associated reference standards, materials, equipment and methods to be used and the required parameters or quantities and ranges to be tested, including the criteria for rejection or approval.

Status Elective

Elements

- Prepare items for calibration
- Perform calibration
- Document results
- Finalise calibration

Prerequisites:

This unit of competency has no prerequisites.

PMLDATA400A - Process and interpret data

This unit covers the ability to retrieve data, evaluate formulae and perform scientific calculations, present and interpret information in tables and graphs and keep accurate records. The unit requires personnel to solve problems of limited complexity where the information may be less obvious, but not contradictory, and can be determined by direct reasoning.

Status Elective

Elements

- Retrieve and check data
- Calculate scientific quantities
- Present data in tables, charts and graphs
- Interpret data in tables, charts and graphs
- Keep accurate records and maintain their confidentiality

Prerequisites:

This unit of competency has no prerequisites.

PMLMAIN400A - Maintain and control stocks

This unit covers the ability to order, maintain and control the use of laboratory materials and/or equipment in the work area.

Status Elective

Elements

- Maintain and control stocks of materials or equipment
- Order and receive materials and equipment
- Maintain stock records
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLOHS301B - Work safely with instruments that emit ionising radiation

This unit covers the ability to safely store, transport and operate instruments that emit ionising radiation following established safe work practices and in accordance with licensing requirements. Examples include use of process control instrumentation, such as fluid level gauges using radioactive sources, on-site non-destructive testing of weldments using X-ray and gamma ray sources and density testing of asphaltic concrete.

Status Elective

Elements

- Store instruments safely and securely
- Transport instruments safely and securely
- Use instruments safely and maintain security
- Monitor radiation levels
- Maintain records
- Perform emergency procedures

Prerequisites:

This unit of competency has no prerequisites.

PMLOHS400A - Maintain laboratory/field workplace safety

This unit covers the ability to monitor and maintain the occupational health and safety (OHS) and environmental programs within a work area where the person has some supervisory responsibility for others. Personnel will be able to participate in risk assessment and management processes, such as working with other staff to assess and manage risks associated with technical activities, coaching others in participating in OHS and environmental management issues, being a safety representative or participating in a safety committee. Their work is done in accordance with defined enterprise policies and procedures.

Status Elective

Elements

- Perform all work safely
- Ensure others in the work group are able to implement safe work practices
- Monitor observance of safe work practices in the work area
- Participate in risk management processes
- Support the implementation of participative arrangements
- Support the implementation of emergency procedures within the work group

Prerequisites:

This unit of competency has no prerequisites.

PMLORG400A - Prepare practical science classes and demonstrations

This unit covers the ability to manage the day-to-day running of science teaching laboratories and the preparation of practical experiments, demonstrations and field trips. Personnel are required to assess and treat risks associated with practical activities. They may work autonomously but are required to liaise closely with teaching staff about the design and scheduling of practical activities.

Status Elective

Elements

- Ensure safe work practices
- Plan work schedule
- Organise experiments and demonstrations
- Manage resources

Prerequisites:

This unit of competency has no prerequisites.

PMLQUAL401B - Apply quality system and continuous improvement processes

This unit covers the exercise of good laboratory practice and effective participation in quality improvement teams. Personnel are required to ensure the quality and integrity of their own work and detect non-conformances and work with others to suggest improvements in productivity and quality.

Status Elective

Elements

- Satisfy quality system requirements in daily work
- Analyse opportunities for corrective and/or optimisation action
- Recommend corrective and/or optimisation actions
- Participate in the implementation of recommended action(s)
- Participate in the development of continuous improvement strategies

Prerequisites:

This unit of competency has no prerequisites.

PMLSAMP200A - Collect routine site samples

This unit covers the ability to collect samples at field or production sites using specified equipment and standard or routine procedures.

Status Elective

Elements

- Prepare for sampling
- Conduct sampling
- Finalise sampling
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLSAMP201A - Handle and transport samples or equipment

This unit covers the ability to pick up and transport samples or test/calibration equipment in accordance with enterprise procedures designed to ensure the integrity of subsequent test results. The person transporting the items is not necessarily responsible for sampling or testing. This unit does not cover the ability to handle and transport animals as might be defined under prevailing animal care and ethics legislation and practices.

Status Elective

Elements

- Prepare for pickup
- Pick up and transport items
- Maintain transport equipment
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLSAMP302A - Receive and prepare samples for testing

This unit covers the ability to log samples, check sample documentation, schedule and prepare a range of samples for testing. All operations are performed in accordance with standard operating procedures (SOPs). This unit does not include testing, tissue processing or similar techniques.

Status Elective

Elements

- Log samples
- Address customer service issues
- Prepare samples for testing
- Distribute samples
- Maintain a safe work area and environment

Prerequisites:

This unit of competency has no prerequisites.

PMLSAMP400B - Obtain representative samples in accordance with sampling plan

This unit covers the ability to obtain a range of samples that are representative of the source material (raw ingredients, product in process, final product) and to prepare the samples for testing. All sampling activities are to be in accordance with a defined sampling plan. This unit does not cover the subsequent testing of the samples.

Status Elective

Elements

- Prepare for sampling
- Conduct sampling and log samples
- Prepare samples for testing
- Address client issues
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLSAMP401A - Prepare mineral samples for analysis

This unit covers the ability to reduce given mineral samples to representative client samples and analytical portions that meet client requirements for analysis. Personnel are also required to recognise problems and invalid preparation steps and to take appropriate corrective actions.

Status Elective

Elements

- Interpret and schedule client requirements
- Prepare client sample(s) for analysis
- Use (non) destructive methods to prepare laboratory portions for analysis
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST200A - Conduct routine site measurements

This unit covers the ability to make direct measurements using enterprise procedures and equipment calibrated by others. Measurements will be straightforward and involve a minimal number of steps, take a short time and have easily recognised control limits.

Status Elective

Elements

- Prepare for measurement(s)
- Perform measurement(s)
- Finalise measurements
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST300B - Perform basic tests

This unit covers the ability to perform tests using standard methods and with access to readily available advice. Personnel are required to demonstrate close attention to the accuracy and precision of measurements and the data obtained. In general, they do not calibrate equipment and make only limited adjustments to the controls. The unit of competency does not cover interpretation or analysis of results or troubleshooting equipment problems.

Status Elective

Elements

- Interpret test requirements
- Prepare sample
- Check equipment before use
- Perform tests on samples
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST303B - Prepare working solutions

This unit covers the ability to prepare working solutions and to check that existing stocks are suitable for use. This unit assumes that calculations of quantities, choice of reagent grades and required dilutions will be specified by the supervisor.

Status Elective

Elements

- Safely use laboratory chemicals, glassware and equipment
- Make up working solutions
- Check existing stock of solutions

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST304B - Prepare culture media

This unit covers the ability to prepare culture media free of contamination required and facilitate optimal growth of organisms and cells. It also includes the ability to organise the materials, equipment and work environment and follow standard methods.

Status Elective

Elements

- Prepare culture media
- Sterilise media
- Pour, label and store media
- Perform quality control checks
- Maintain work area and equipment to prevent cross-infection and contamination

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST305B - Perform aseptic techniques

This unit covers the ability to perform aseptic techniques to maintain the integrity of both the sample source and the sample. It applies to sampling techniques in tissue culture and to generic microbiological procedures.

Status Elective

Elements

- Prepare for aseptic sampling or transfer
- Transfer materials aseptically
- Maintain work area and equipment to prevent cross-infection and contamination

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST306B - Assist with fieldwork

This unit describes the ability to perform tasks associated with organisation of fieldwork, field surveys and field camp operations. It also covers basic field survival skills and collection of samples in the field. This unit of competency does not include gaining clearance for animal trapping, tagging, keeping or experimentation. It does not cover animal handling techniques. The worker would only perform those tasks under the guidance and supervision of a scientific officer.

Status Elective

Elements

- Assist with organisation of fieldwork
- Perform tasks related to field camp operations
- Perform tasks related to field surveys
- Demonstrate basic field survival skills
- Assist with the close down of field camp

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST307B - Prepare trial batches for evaluation

This unit covers the ability to prepare trial batches of materials for evaluation. Materials can include soil, minerals and manufactured products, such as concrete, asphalt, food, plastics, paint and other industrial chemicals.

Status Elective

Elements

- Prepare for trial batch mixing
- Mix trial batch for evaluation
- Evaluate properties of the mixture by inspection and standard test methods
- Clean equipment and dispose of materials
- Maintain records
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST308A - Perform microscopic examination

This unit covers the ability to prepare routine samples and examine them using a light microscope, standard methods and readily available advice. Personnel are required to set up microscopes for optimum resolution and observe, identify and report sample characteristics. The unit covers limited interpretation and analysis of results. Troubleshooting of equipment and procedures is not required

Status Elective

Elements

- Interpret test requirements
- Set up work area for preparation and examination of samples
- Prepare samples for examination
- Set up and use a light microscope
- Observe, identify and report sample characteristics
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST402B - Prepare, standardise and use solutions

This unit covers the ability to prepare, standardise and use solutions to monitor the quality of prepared solutions.

Status Elective

Elements

- Prepare solutions
- Standardise and use volumetric solutions
- Calculate and record data
- Monitor the quality of laboratory solutions
- Maintain a safe work environment

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST403B - Assist with geotechnical site investigations

This unit covers the ability to assist with geotechnical site investigations. This competency is typically performed by laboratory technicians working under the guidance of a geotechnical (para)-professional or engineer.

Status Elective

Elements

- Prepare for on-site operations
- Assist with excavation of boreholes, test pits and/or trenches
- Assist with sampling
- Assist with testing
- Maintain records

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST404A - Perform chemical tests and procedures

This unit covers the ability to interpret chemical test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine chemical tests/procedures. These tests will involve several measurement steps. The unit includes data processing and interpretation of results and tracking of obvious test malfunctions where the procedure is standardised. However, personnel are not required to analyse data, optimise tests/procedures for specific samples or troubleshoot equipment problems where the solution is not apparent.

Status Elective

Elements

- Interpret and schedule test requirements
- Receive and prepare samples
- Check equipment before use
- Test samples to determine chemical species or properties
- Process and interpret data
- Maintain a safe work environment
- Maintain laboratory records

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST405A - Perform food tests

This unit covers the ability to interpret food test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine testing of raw food materials, in-process materials and final products. These tests will involve several measurement steps. The unit includes data processing and some interpretation of results and tracking of obvious test malfunctions where the procedure is standardised. However, personnel are not required to analyse data, optimise tests/procedures for specific samples or troubleshoot equipment problems where the solution is not apparent.

Status Elective

Elements

- Interpret and schedule test requirements
- Receive and prepare food samples
- Check equipment before use
- Test samples to determine food components and characteristics
- Process data
- Maintain a safe work environment
- Maintain laboratory records

Prerequisites:

This unit of competency has the prerequisite of PMLTEST308A Perform microscopic examination.

PMLTEST406A - Perform physical tests

This unit covers the ability to interpret physical test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine physical tests. These tests will involve several measurement steps. The unit includes data processing and interpretation of results and tracking of obvious test malfunctions where the procedure is standardised. However, personnel are not required to analyse data, optimise tests/procedures for specific samples or troubleshoot equipment problems where the solution is not apparent.

Status Elective

Elements

- Interpret and schedule test requirements
- Receive and prepare samples
- Check equipment before use
- Test samples to determine physical properties
- Process and interpret data
- Maintain a safe work environment
- Maintain laboratory records

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST407A - Perform biological procedures

This unit covers the ability to interpret work requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine biological procedures, including sample preparation. These procedures may involve several steps and are used to classify cell types, species and biologically active compounds by analysing their biological and chemical characteristics. This unit includes data processing, interpretation of results and troubleshooting obvious departures from standard procedures.

Status Elective

Elements

- Interpret and schedule work requirements
- Receive and prepare biological samples
- Perform techniques that assist in the classification of a cell or species
- Perform techniques that analyse biological activity
- Maintain a safe work environment
- Maintain laboratory records

Prerequisites:

This unit of competency has the prerequisites of PMLTEST308A Perform microscopic examination and PMLTEST305B Perform aseptic techniques.

PMLTEST408A - Undertake environmental field-based monitoring

This unit covers the ability to organise and undertake field monitoring programs that are primarily focused on the determination of physical and chemical parameters and/or observation and documentation of biological/ecological systems. It covers confirming the requirements of the monitoring activities, sampling, sample handling, physical and chemical monitoring and simple field-based analysis, data collection and recording. It also covers field camp maintenance and field safety. The unit covers gaining clearance for animal trapping, tagging, keeping or experimentation, but does not cover specific animal handling techniques. These tasks would only be performed under the guidance and supervision of a scientific officer.

Status Elective

Elements

- Confirm requirements for field monitoring activities with supervising staff
- Prepare for field monitoring activities
- Perform field activities
- Close down field monitoring activities

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST409A - Capture and manage scientific images

This unit covers the ability to capture accurate and reproducible images of scientific (environmental, medical and technical) subjects using a scientific approach and enterprise procedures/protocols to ensure the integrity of the image. It also includes the ability to generate and maintain pre and post image capture records to ensure that images can be reproduced if required in the future.

Status Elective

Elements

- Establish requirements for image capture
- Plan and set up the shoot
- Capture and reproduce the required image
- Keep records and deliver images

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST410A - Undertake environmental field-based, remote-sensing monitoring

This unit covers the ability to design, construct, organise and undertake a defined field-based, remote sensing monitoring activity. This includes sampling, instrumental calibration and monitoring, data collection and storage, and associated field testing and laboratory analysis. This unit of competency does not cover developing specific monitoring protocols or detailed design and/or construction of buildings, structures associated with the remote-sensing monitoring activities.

Status Elective

Elements

- Confirm remote sensing field monitoring requirements with supervising staff
- Design and assemble remote-sensing field monitoring system
- Organise and establish the remote-sensing monitoring site(s).
- Operate and maintain monitoring site(s)
- Close down field monitoring activities

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST411A - Perform mechanical tests

This unit covers the ability to interpret mechanical test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine mechanical tests. These tests will involve several measurement steps. The unit includes data processing and interpretation of results and tracking of obvious test malfunctions where the procedure is standardised. However, personnel are not required to analyse data, optimise tests/procedures for specific samples or troubleshoot equipment problems where the solution is not apparent.

Status Elective

Elements

- Interpret and schedule test requirements
- Receive samples and prepare test-pieces
- Check equipment before use
- Test samples to determine mechanical properties
- Process and interpret data
- Maintain a safe work environment
- Maintain laboratory records

Prerequisites:

This unit of competency has no prerequisites.

PMLTEST412A – Prepare tissue and cell cultures

This unit of competency covers the ability to interpret work requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine biological procedures, including sample preparation. These procedures may involve several steps and are used to classify cell types, species and biologically active compounds by analysing their biological and chemical characteristics. This unit includes data processing, interpretation of results and troubleshooting obvious departures from standard procedures.

Status Elective

Elements

- Interpret and schedule work requirements
- Receive and prepare biological samples
- Perform techniques that assist in the classification of a cell or species
- Perform techniques that analyse biological activity
- Maintain a safe work environment
- Maintain laboratory records

Prerequisites:

This unit of competency has the prerequisite of PMLTEST305B Perform aseptic techniques.
