



Faculty of Science Awareness Guide

Version 4.0

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Contents

Purpose of the guide	3
CSU Occupational Health and Safety Policy	4
Occupational Health, Safety and Welfare Objectives and Responsibilities	5
Emergency Information	6
CSU Emergency Team Structure.....	6
Building Evacuation Procedure	6
Emergency Contact List	7
Faculty of Science First Aid Officers	7
Reporting building faults or maintenance	8
Technical Services Information	9
Faculty of Science Technical Facilities	9
Technical Committee Groups.....	9
Website Information	12
Faculty of Science Technical Services Centre Website	12
Useful Websites	12
Training	14
Training provided by the Human Resources at CSU	14
Risk Management and Workplace Safety	15
Risk Management	15
Risk Assessments (RA)	15
Risk Registers	19
High Risk Work Situations.....	20
Safety Signs	20
General Laboratory Procedures.....	21
Safety in Laboratories – Australian/New Zealand Standards.....	23
Containment Required when Dealing with Imported Biologicals.....	23
Manual Handling in the Workplace	24
Infection Control	24
Immunisation / Vaccination	25
Precautions for Women and Immunosuppressed	25
Material Safety Data Sheets, Chemical Labelling and Handling.....	27
Labelling Chemicals	27
Chemical Storage.....	27
Chemgold.....	28
Risk and Safety Phrases.....	29
Waste	31
Waste Disposal from Science Facilities General Principles	31
Waste Streams.....	31
Waste Definitions and Terms	32
Summary of Waste Collection.....	33
Horticulture, Containment Facilities and Glasshouses.....	37
Plant Containment Facilities / Glasshouses	37
Noxious Weeds	37
Field and Farm Work.....	38
Field Work	38
Farm Visits	38
Appendix	39
Policy for the use of human biological specimens in undergraduate & research laboratories	39
Hazard and accident/incident reporting & investigation procedure	41
Accident/ Incident Report.....	42
First Aid Kits	43

Purpose of the guide

The purpose of this guide is to raise awareness of your rights and responsibilities to work in and help create an environment that is safe for everyone. Nothing can replace the supervised training that you will receive in the lab by your supervisors and work colleagues and other approved courses. This manual is designed as a reference source to help ensure that the risks you are exposed to whilst working in the Faculty of Science are at an acceptable level. Please use it as a reference tool and if in doubt about any information do not be afraid to ask us for help and advice.

Sources of material based on original material from School of Biotechnology and Biomolecular Sciences, UNSW.

Version 2.1: June, 2008
Ingrid Stuart, Charles Svenson

Version 3.0 June 2009
Ingrid Stuart, Charles Svenson

Version 4.0 September 2011
Ingrid Stuart, Charles Svenson

CSU Occupational Health and Safety Policy

Charles Sturt University shall provide each employee and student with a safe and healthy place in which to work or study and, in the case of resident students, in which to reside. Further, the University shall provide a safe and healthy environment for visitors, sub-contractors etc. who are required to enter University premises. The University will ensure that safe plant, machinery and equipment are provided for all staff and students and that safe and healthy work practices are employed. The University in the implementing of this policy will observe relevant occupational health and safety legislation.

To achieve this, the University will maintain an Occupational Health and Safety program. This program will focus responsibilities and resources in the areas of accident and injury prevention, hazard removal and control, health and welfare preservation, the development of safe and healthy work practices, the promotion of health and safety awareness, the provision of training in safe and healthy work practices, the compliance with health and safety legislation and regulations, the rehabilitation of injured employees and consultative mechanisms.

Overall responsibility for occupational health and safety at the University rests with the Vice-Chancellor. The Executive Director, Division of Human Resources has delegated responsibility for occupational health and safety across the University and each level of management has specific responsibilities for the implementation of this policy. Further, all staff and students have a general responsibility in terms of the Occupational Health and Safety Act (NSW) to ensure a safe and healthy work environment. The broad parameters of these specific responsibilities are set out in the policy document Occupational Health, Safety and Welfare Objectives and Responsibilities.

The success of the Occupational Health and Safety Policy rests on the commitment of management at all levels to its successful implementation and to the involvement and commitment of staff and students.

To monitor and assist with the implementation of this policy, Occupational Health and Safety Committees have been established at each Campus pursuant to the provisions of the NSW Occupational Health and Safety Act, 2000. Each Committee reports to the Executive Director, Division of Human Resources. The Presiding Officers of each OH&S Committee represent these committees on the University-wide Environment and Safety Management Committee established to coordinate occupational health and safety matters across the University.

Where Charles Sturt University has a presence at sites other than a designated campus, it is the responsibility of the management of that site, or the coordinating senior officer of the University in regard to joint ventures, to ensure the operations at that site are compliant with applicable health and safety legislation.



Professor I.C. Goulter
Vice-Chancellor

Occupational Health, Safety and Welfare Objectives and Responsibilities

Summary

The Occupational Health and Safety Policy, approved by the Vice-Chancellor, commits the University to ensuring a safe and healthy workplace for staff, students and visitors. This document specifies the objectives and responsibilities for implementing that policy and outlines the University program for occupational health, safety and welfare of staff, students and visitors to Charles Sturt University.

The University has implemented a number of occupational health and safety measures. These include the establishment of consultative processes at campuses, such as provided by Occupational Health and Safety Committees and Critical Response Groups; the establishment of consultative processes at the university level, such as provided by the Environment and Safety Management Committee, the Biosafety Committee, the Radiation Safety Committee, and the Emergency Planning Committee; a reporting system to record and investigate accidents and other health and safety incidents; a workplace injury management and rehabilitation process for injured staff; a system of workplace inspections and action plans; a hazard reporting system; and the provision of a Manager, Occupational Health & Safety Systems to provide advice and to facilitate staff training in safe and healthy work practices.

All management staff has responsibility for undertaking reviews in the light of new processes and equipment and in ensuring that new staff are acquainted with the policy, trained in safe and healthy work practices and are provided with a safe and healthy place in which to work.

To implement the policy, staff at all levels must recognise their responsibilities. This will require the ongoing incorporation of occupational health and safety principles into work practices, the ongoing commitment of resources to occupational health and safety and communication between all levels of staff.

Full version can be sourced at
[Occupational Health Safety and Wellbeing website](#)

Emergency Information

CSU Emergency Team Structure

Chief and deputy Chief Warden	White hard hats
Building Wardens	Yellow hard hats
Wardens	Red hard hats
First Aid	Green hard hats with white cross

Information for incidents at CSU is located at [Emergency Preparedness](#) which contains details of the following:

- The Emergency Planning Committee
- Emergency Flipcharts
- Access for Emergency Services
- Wardens
- Emergency Procedures
- First Aid Officer

CSU Emergency flipchart has been installed on all desk tops of CSU computers. Click on the icon on your desk top to access the specific information



CSU Emergency Flipchart.lnk

Make sure you know your local emergency plan by referring to your local Laboratory Manual.

Building Evacuation Procedure

As you will generally not be in a position to know what the reason is, always take any building evacuation seriously. It is everyone's responsibility to know where their Evacuation Assembly Point is. It is also your responsibility to learn and know your safe evacuation exit out of your working area.

1. Remain Calm. DO NOT run or shout, as this may cause others to panic and become injured.
2. Alert nearby staff members.
3. Await instructions from floor and building wardens, particularly for bomb threat. Bomb threat procedures require that exit routes be checked for safety prior to evacuation.
4. Upon instruction, move in an orderly manner to your designated assembly point.
5. If time permits, take valuables with you.
6. Close doors behind you to reduce smoke and fire transmission.
7. Do not re-enter building until it has been declared safe to do so by the Building Warden.

Should you discover a fire:

1. Remain Calm. Do NOT shout 'FIRE' as this may cause panic and lead to injuries.
2. Alert nearby staff to leave the immediate area.
3. Dial '000' and request the Fire Brigade. Do NOT assume that someone else has phoned.
4. Notify the Building Warden and activate the nearest alarm.
5. When all staff and visitors are out of the danger area, confine the fire and smoke by closing doors leading to the fire area.

- Attempt to contain or extinguish the fire only if it is safe for you to do so.

Operate the fire extinguisher as follows:

P - Pull Pin & Test the Extinguisher

A - Aim the nozzle at the base of the fire

S - Squeeze the handle

S - Sweep the base of the fire

- Turn off the power to electrical appliances. (See note below)
- Turn off any gas (mains or cylinders) that may be in use.
- Shut down equipment at the switch or by emergency shutoff.
- DO NOT USE LIFTS.
- Leave ALL lighting on.
- Leave the building immediately via nearest safe exit.
- Evacuate the building following floor warden's instructions.
- Stay at assembly point until directed otherwise.

Note: Power can be left “on” to air conditioning systems to provide for clean air as these benefits outweigh the negative effects of feeding the fire.

AFTER HOURS – there may not be an evacuation team to direct you but follow the same principles as above.

Emergency Contact List

CSU phone numbers can be called from inside any university campus by calling the last five digits. Calling from outside the campus or on a mobile phone will require the full number. CSU uses [VOIP](#) telephony.

Security (on all campuses)
Fire Police Ambulance
Poisons Information Centre

dial 400
dial 000
dial 13 11 26

Security Services on all campuses dial 400 or alternatively		
Bathurst		633 84999
Wagga		693 32288
Albury - Wodonga		605 19888
Orange		636 57522
Dubbo		0418 219 170
Radiation Safety		
Presiding Officer	Xioaming Zheng xzheng@csu.edu.au	693 32068
Biological Safety		
Presiding Officer	Dr Nigel Urwin nurwin@csu.edu.au	693 32450
Chemical Safety Presiding Officer		
Presiding Officer	Dr Heather Robinson	636 57808
OH&S and Workers Compensation OHS Coordinator		
Manager OHS	David Tallentire dtallentire@csu.edu.au	633 84096

Faculty of Science First Aid Officers

As at August 2011

Albury-Wodonga	Kylie Kent	605 19482
	George Pender	605 19237

Bathurst	Jason Poposki	633 84817
	Sommer Wilde	633 84326
	Jim Watt	633 84373
Orange	Grace Kay	636 57848
	Lorraine Wenham	636 57295
	Cheryl Gander	636 57850
Wagga Wagga	Joe Price	693 32204
	Marion Kater	693 32254
	Andrew Drumm	693 32241
	Kathy Shaw	693 32169
	Scott Swain	693 32354
Dubbo	Ingrid Stuart	688 57327

[CSU First Aid Officers](#)

Reporting building faults or maintenance

Maintenance Requests (BEIMS)

The submission of maintenance requests needs to be submitted through a BEIMS authorised person from your unit, usually member of the administrative staff. Please direct all maintenance requests through your BEIMS officer. See list of authorised users below. Contact the facilities management [Customer Services staff](#) on your campus for **URGENT** requests or dial **86336 (86DFM)**.

List of Authorised Users

[Albury - Wodonga campus](#)

[Bathurst campus](#)

[Dubbo campus](#)

[Orange campus](#)

[Wagga campus](#)

[Maintenance Request Form for authorised users](#)

[User Guide for BEIMS Remote Requests](#)

Technical Services Information

Faculty of Science Technical Facilities

The Faculty of Science has specialised facilities located across seven schools and five campuses at: Albury-Wodonga, Bathurst, Wagga Wagga, Orange and Dubbo. Many of these facilities have been purpose built. Technical staff with competencies in specialised disciplines works in these facilities. As well as working for Schools, the technical staff from each facility form part of a workgroup or committee that is based across the campuses. These are grouped on location (Northern, Central and Southern), and they undertake activities such as: risk assessments, workplace inspections and work area specific training.

Technical Committee Groups

Faculty of Science Laboratory has been divided into three geographical areas for the consultation of technical and staffing issues. These technical committee groups do not replace nor do they work for the campus OHS committees. The aim of the committee is to enhance teaching, research and facilities management by promoting and facilitating a safe, healthy and secure learning and working environment.

Any person should take OHS concerns immediately to their supervisor or line manager. If the issue cannot be resolved, the person then has the responsibility to report the problem to a member of the [Campus OHS committee representative](#). Technical Committee meetings are usually held once each month. Minutes of meetings are posted on S drive and distributed to members.

Area	Campuses	Chairperson	Contact details
Northern Group	(Bathurst, Orange, Dubbo)	Jim Watt	633 84373 or 0409157013
Central Group	Wagga Wagga	Natalie Allison	693 32350
Southern Group	Albury-Wodonga	Kylie Kent	605 16955

What is Facility Management?

A facility comprises any work areas including laboratories, specialist learning areas, clinics or workshops that are serviced by the technical staff of the Faculty of Science and managed by the Manager, University Laboratories.

A Facility Manager is an experienced technical officer appointed by the Head of School or in some cases, the Manager University Laboratories. This person may not necessarily work in that physical area but is of sufficient expertise and ranking to manage it. Each work area, laboratory or specialist learning area has a manager assigned to it (ie laboratory manager/ clinic manager) who reports to the Facility Manager. The Facility Manager oversees the legislative and compliance requirements of the facility.

Facility Manuals

Each distinct work area within the facility whether it be a clinic, laboratory or work area is required to have a 'Manual' documenting the processes that occur within it. A template of the Manual is available on the [forms and procedures webpage](#). The manual shall be specific to the type of laboratory/learning area for which it is designated, and outlines the issues relative to working in that area. This manual also needs to be supplemented by further documentation consisting of:

- The Faculty Awareness Manual,
- Induction and Training records,
- Standard Operating Procedures, Risk Assessments & a Risk Register
- Material Safety Data Sheets

- Registers and Logs eg autoclave register, chemical register, asset register

Inductions

Facility Inductions are a requirement for all new staff, workers, contractors and visitors. Staff shall also induct students initially at the start of the session into each room of the facility. Visitors who will be accompanied at all times by an inducted member of staff do not require induction into most facilities – with the exception of PC2, radiation. Visitors who will be unaccompanied at times or are performing work or undertaking activities will require induction as outlined in the [Visitors guidelines](#).

Authorisation to use a Facility, Laboratory or Specialist Learning Area managed by the Faculty of Science requires the person to be familiar with the safety aspects of the work area. An [induction](#) must take place before work, research or teaching commences in the Facility using an [Induction form](#). This must be completed and signed off by the inductee and Facility Manager and then retained in the individual's training records.

Authorisation to access a PC2 facility requires additional training and requires the completion of an additional [Physical Containment \(PC2\) Access Form](#). Access to a PC2 laboratory is restricted to authorised personnel whose names shall be posted on a [PC 2 Access list](#) attached to the main door of the facility.

Procedures

Many faculty specific procedures are listed in the [procedure and forms](#) section of the technical services website. [Standard Operating Procedures Documentation](#) is designed to help with the writing of procedures and to document the correct method of conducting specific activities. Procedures must be written for all tasks identified as involving a potential hazard. The procedures should be placed in the work area and a hard copy made available to all persons who perform the task. For information relating to contractors consult the [DFM website](#) and the [OHS policy and procedures website](#).

Assets and Equipment

All equipment must be registered on an asset register. Equipment and assets should be cleaned thoroughly after use. Equipment or assets that require regular servicing should be listed on the [maintenance log](#). Each asset can have its own maintenance log if required, and this is the [Maintenance log equipment](#) or [Maintenance log – autoclave](#).

Double adaptors are not to be used in the facilities and laboratories. Laboratories and are termed 'hostile' and consequently all electrical equipment needs to be tested regularly and tagged. Portable equipment also requires regular electrical testing.

Temperature sensitive equipment (coolrooms, freezers, fridges, autoclaves) require regular monitoring and appropriate remedial action to be initiated should the need arise.

Safety showers and eyewash stations are required to meet Australian standards. This is provided in the [Safety Shower and eyewash compliance procedure](#).

Maintenance and Cleaning

[Laboratory Cleaning and Maintenance Guidelines](#) have been written to assist in the general maintenance of Facilities.

Regular cleaning of many work areas is performed by cleaners and the tasks are outlined in the cleaners' contract. Cleaners need to be inducted into the work area and informed of any hazards present. Template forms are available on the [Laboratory /Facility Management](#) page of the technical services webpage.

Health and Safety

For the health and safety of all workers, visitors and students in a facility, the [Faculty door sign](#) poster shall be displayed on the entrance door of every facility and all subsequent doors therein where the activities of items contained in the room may pose a risk to persons. Signs and risk stickers are available from the [Laboratory store](#).

First Aid kits need to be identified and be restocked at regular intervals as set out by the Manager OH&S.

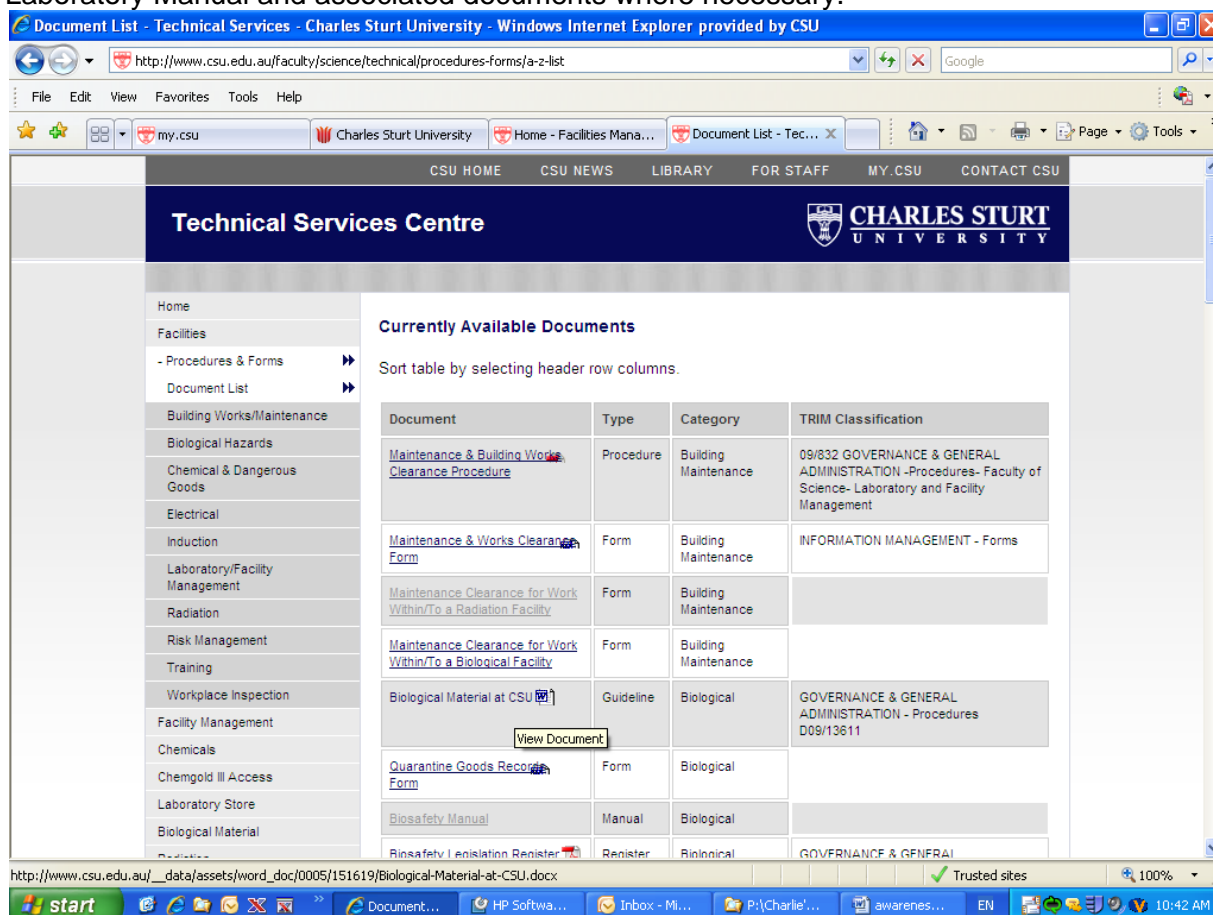
Working After Hours or Alone

Due to the increased risk associated with working after hours or alone, permission from the facility manager is required in the first instance. Further, the [Working after Hours or Alone Procedure](#) must be followed and an [Authorisation](#) form completed. It is important to include a risk assessment as well as documenting contact persons.

Website Information

Faculty of Science Technical Services Centre Website

The Faculty of Science (FSc) [technical website](#) contains documentation for managing risks as well as general information relating to the operation of facilities. Templates, forms, and procedures can be downloaded and should be incorporated into sections of the Local Laboratory Manual and associated documents where necessary.



The screenshot shows a web browser window displaying the Charles Sturt University Technical Services Centre website. The page title is "Document List - Technical Services - Charles Sturt University - Windows Internet Explorer provided by CSU". The URL is "http://www.csu.edu.au/faculty/science/technical/procedures-forms/a-z-list". The website header includes navigation links: CSU HOME, CSU NEWS, LIBRARY, FOR STAFF, MY.CSU, CONTACT CSU. The main content area is titled "Technical Services Centre" and features a navigation menu on the left with categories like Home, Facilities, Procedures & Forms, Document List, Building Works/Maintenance, Biological Hazards, Chemical & Dangerous Goods, Electrical, Induction, Laboratory/Facility Management, Radiation, Risk Management, Training, Workplace Inspection, Facility Management, Chemicals, Chemgold Ill Access, Laboratory Store, Biological Material, and Radiation. The main content area is titled "Currently Available Documents" and includes a table with columns: Document, Type, Category, and TRIM Classification. The table lists several documents, including "Maintenance & Building Works Clearance Procedure", "Maintenance & Works Clearance Form", "Maintenance Clearance for Work Within/To a Radiation Facility", "Maintenance Clearance for Work Within/To a Biological Facility", "Biological Material at CSU", "Quarantine Goods Records Form", "Biosafety Manual", and "Biosafety Legislation Register". A "View Document" button is visible over the "Biological Material at CSU" row. The bottom of the screenshot shows the Windows taskbar with the Start button, several open applications, and the system tray showing the time as 10:42 AM.

Document	Type	Category	TRIM Classification
Maintenance & Building Works Clearance Procedure	Procedure	Building Maintenance	09/832 GOVERNANCE & GENERAL ADMINISTRATION - Procedures- Faculty of Science- Laboratory and Facility Management
Maintenance & Works Clearance Form	Form	Building Maintenance	INFORMATION MANAGEMENT - Forms
Maintenance Clearance for Work Within/To a Radiation Facility	Form	Building Maintenance	
Maintenance Clearance for Work Within/To a Biological Facility	Form	Building Maintenance	
Biological Material at CSU	Guideline	Biological	GOVERNANCE & GENERAL ADMINISTRATION - Procedures D09/13611
Quarantine Goods Records Form	Form	Biological	
Biosafety Manual	Manual	Biological	
Biosafety Legislation Register	Register	Biological	GOVERNANCE & GENERAL

Useful Websites

CSU [Faculty of Science](#)

CSU Faculty of [Science Technical Website](#)

CSU [Occupational Health & Safety](#) website

CSU [Chemical Safety](#) Committee

CSU [Laboratory Store](#)

CSU [Biosafety Committee](#)

CSU [Radiation Committee](#)

CSU [Research website](#)

CSU Research & Ethics Committees

- [Board of Graduate Studies](#)
- [Intellectual Property & Outside Professional Activities Committee](#)
- [Research Management Committee](#)

- [Research Planning Committee](#)
- [Animal Care and Ethics Committee](#)
- [Ethics in Human Research Committee](#)
- [Environmental Health and Safety Committee](#)

Australian Quarantine Inspection Service <http://www.daffa.gov.au/aqis>

This site contains various information regarding exotic disease and pests - in addition to information on transportation, importing and exporting of biological specimens.

Office of the Gene Technology Regulator (OGTR) <http://www.ogtr.gov.au>

This site contains all the [form and regulations](#) governing work involving recombinant DNA technology eg GMO's, and PC1, PC2 and PC3 labs.

Australian Standards:

This site provides information and compliance information for Australian Standards. In particular the AS/NZS2243 is about laboratory procedures, design and operation. It can be accessed through the CSU library. <http://www.csu.edu.au/division/library/find-info/databases>

Note: This link takes you to the Library Databases Site. Go to 'Please select a Database'. Click on the down arrow. Choose 'Standards Online'. Click on Go.

ChemGold III (Chemical Management Software) including Material Safety Data Sheets (MSDS)

[Chemgold III](#) enables staff and students of CSU to search the database for chemicals and to print out relevant information, including MSDS's. Staff and researchers who require access to the 'manifest/stores' area of the database need to request approval and password access. Approval can be sought by sending an email with details of the stores locations and user information to: chemwatch@csu.edu.au.

Training

Training provided by the Human Resources at CSU

It is a requirement that all staff newly appointed to continuing and fixed term positions complete the new [OHS Online Induction program](#) within four weeks of commencing duties as outlined by the division of Human resources. Charles Sturt University has an agreement with ELMO Learning Services for the provision of a web based OHS Online Training for staff through a specifically designed portal.

Online training is offered to provide you with information to assist you in minimising risks that may affect your health and safety. This training is generic in nature and is meant to be supplemented with specific job or task related training at an appropriate time to achieve a good learning outcome.

CSU is also required to ensure that it can provide evidence that such information, instruction or training has been undertaken and a required level of competency achieved. Each ELMO module requires a score of 80% or greater in the assessments. On obtaining a score of 80% or more a record is then created and transferred to your personal details in the Human Resources database. A score of less than 80% is a learning opportunity for you to review the module and to undertake the assessment again. Each new assessment uses different questions from the ELMO question bank.

Whilst they can be completed in any order, the preferred sequence is below, as it appears on the ELMO page:

1. Introduction to Safety at CSU;
2. Manual Tasks;
3. Office Ergonomics;
4. Risk Management; and
5. Accident Investigation.
6. Fire and Emergency Procedures.

To access the service: <http://elearn.com.au/csu/START.htm>.

Developmental Training

The role of OH&S is to identify occupational health and safety training needs, develop and present training programs and coordinate training programs involving internal or external consultants. The range of training programs available is in the [Staff Development Calendar](#).

Faculty of Science Training

The training programmes delivered by the Faculty of Science will be organised through the Technical Steering Committee when available.

Creating Training Records

Documented training records are required to be kept for all individuals. Training that refers specifically to the task involved in that particular facility shall be documented and kept in the facility.

Individuals shall have their training documented on an [individual training form](#) with details of the training to be retained as well. There is a [group training form](#) when undertaking a group training session.

Risk Management and Workplace Safety

Risk Management

CSU's Risk Management Policy required the management of both strategic and operational risks. Risk management is a core component of University governance. The purpose of the University's Risk Management Policy is to:

- develop a culture of risk awareness within Charles Sturt University;
- ensure compliance with risk management processes that are mandated by Government;
- integrate and align risk management systems with Charles Sturt University's activities and business processes;
- encourage continuous review and improvement of the University's risk assessment and management process.

The Faculty of Science has an array of [risk management documentation](#) to:

- ensure that corporate risks are taken into account when making strategic management decisions
- ensure the management of operational risk is integrated into standard management and accountability processes
- develop a culture where staff assume responsibility for managing risks
- risk assess all tasks and complete a risk assessment paperwork
- compile all risks on a [Risk Register](#)
- develop and communicate the CSU compliance policy and associated procedures and guidelines
- provide advice and assistance on specific hazards
- conduct Facility audits for the Faculty
- maintain a central database for all reported Risks the faculty may face
- provide advice in relation to OHS regulations during the design and construction of buildings at CSU
- develop and implement training faculty staff

Risk Assessments (RA)

The Faculty of Science has developed [Risk Assessment Procedure](#) and [Risk Assessment Forms](#). Risk Assessments are to be undertaken for all activities undertaken at all CSU campuses, field trips, student placements, etc.

How to assess the Risks in your Workplace

- Hazard:** A source or a situation with a potential for harm the health, safety and welfare of people at CSU, or damage property, equipment or the environment
- Risk:** Risk refers to the likelihood that a hazard will cause injury, illness or disease, and the severity of the injury, illness or disease that may result.
- Consequence:** The outcome of an event.
- Likelihood:** The probability or frequency of an event. In OH&S terms, this means the probability or frequency of the consequences of an event.
- Risk Rating:** Is the procedure that produces a risk level for the activity. This is a combination of the consequence of a risk and the likelihood it will occur.

1. Identify the tasks - list the substances, equipment and methods that are going to be used for the job

2. Identify the hazards associated with the task

A hazard is a source of potential harm or a situation with the potential to cause harm.

Hazards can arise from:

- the workplace environment
- the use of plant and substances
- poor work design or practices
- inappropriate management systems and procedures
- human behaviour

Numerous methods and sources of information can be used to identify hazards associated with your activity:

- A checklist of hazards may be used to initially screen for types of hazards (Table 1)
- talk to your supervisors about the substances and methods you may be using
- information from manufacturers of plant and equipment
- information from suppliers of chemicals, eg Material Safety Data Sheets
- Australian Standards
- National, State and Industry Codes of Practice
- Non-conformances from local OHS audits
- Incident data for the local area
- Inspection and Testing Reports

Table 1 Hazards in the workplace

Activity	Hazard	Risk	Risk control
Chemicals	Contact with hazardous, dangerous, carcinogenic, mutagenic, etc substances	Chemical burns to skin and eyes, inhalation and ingestion, spills, cancers, lung impairment, headaches, dermatitis, eye irritation, nose and throat irritation	PPE such as gloves, coats, safety glasses, covered footwear, restricted access, labeling; spill kits; fume hoods; contract disposal; training and induction
Decanting cryogenic liquids	Contact with cryogenic liquid, eg liquid nitrogen	Burns to exposed body parts, eg hands, feet, eyes, etc	PPE such as gloves, coats, safety glasses, covered footwear, restricted access, training
Electrical operations, eg heaters, equipment, fans	Electricity	Electrocution, electric shock	Portable Electrical Appliance Inspection, Testing and Tagging Program; RCDs on power outlets
Field trips	Accidents, animals, weather, abuse, violence	Physical injury, disease, infections, sunburn, drowning, personal safety	Preparation, PPE, vehicle maintenance,
Gas cylinder storage and use	Chemical reactions, cylinder mass, transport	Fire, leaks, explosion, physical injury	Training, labelling, correct segregation, PPE, restricted access
Health	Medical condition /preventable diseases	Epilepsy, diabetes, pregnancy, heart attack, stroke, seizure, asthma, fainting, blood pressure, angina, glycemia	Ensure: First Aid is available, Appropriate vaccinations, Ambulance is contacted if required, Incident form is completed.
Manual handling	Moving equipment, furniture, books.	Strains, back injury, pinch points, crushing, property damage due to incorrect or excessive lifting, bending, reaching or carrying	Use appropriate manual handling equipment such as trolleys, hoists, forklifts, lift tables, pallet trucks, floor cranes, etc
Noise	Noise	Temporary or permanent	Eliminate or substitute noisy

generation		hearing loss, annoyance, disturbance to work	process, PPE, isolation, sound boxes
Photocopying	DVT, toner inhalation, electrocution, ventilation, glare, burns	Physical injury, eye damage, burns	Take frequent breaks; have machine serviced regularly; ensure room is ventilated; ‘;
Plant or equipment	Manual handling, moving parts, spinning parts, chains, belts, blades, pinch points	Injury caused by moving parts, metal fragments, noise, dust, poor maintenance	PPE, qualifications, training, good housekeeping
Radioactive isotopes	Exposure to radiation	Cancer and sickness due to ionising radiation	Use only in designated radiation laboratories; training and licensing, PPE and contract disposal
Travel by vehicle	Accidents, fatigue, mechanical failure	Personal injury, property damage	Preparation, maintenance, licensing
Working inside a building	Fire, stairs, doors, lifts, corridors, windows, movement of furniture, construction activities, staff functions	Personal injury, explosion, smoke, falls, electrocution, property damage	Induction, fire extinguishers, fire doors, sprinkler systems, infrastructure maintenance, good housekeeping, workplace inspections, contractors inducted, risk assessments complete
Working with computers	Repetitive work, poor ergonomics	Overuse injury, debilitation	Workstation inspection, training, rest breaks, ergonomic software, workload monitoring
Working with animals	Bites, kicks, transmittable diseases	Physical injury, infection,	PPE, vaccinations, adequate restraints

3 Identify and assess the risks associated with these hazards when doing the task.

Risk level may vary between employees depending on, for example, training, skills and experience, physical capabilities, environmental conditions and the number and complexity of tasks being carried out in unison. Determine the severity and determine the likelihood by:

1. Considering what can go wrong that can hurt someone
2. Determining what the most likely outcome would be – i.e. the severity
3. Determining how likely those consequences are – i.e. the likelihood
4. Calculating the risk rating using the Hazard Scale Table
5. Take required actions

Hazard Scale Table

Table 2

Severity How severely could it hurt someone?	Likelihood How likely is it to be that bad?			
	Very likely	Likely	Unlikely	Very unlikely
Kill or cause permanent disability or ill health	1	1	2	3
Long term illness or serious injury	1	2	3	4
Medical attention and several days off work	2	3	4	5
First aid needed	3	4	5	6

Use the following table to determine the action you should take what hazards need to be controlled to have the work approved.

Interpreting the Matrix

Table 3 Matrix Interpretation - Actions

Matrix number	Attention	Actions and responsibilities	Process to be Followed
1	Urgent	Act now if a situation arises. Notify Supervisor immediately	The task CANNOT PROCEED without lowering the risk. Implement as many of the 'hierarchy of controls' as possible before re-determining the risk
2	High priority	Act now Notify Supervisor today To proceed you require HOS or MUL (or delegate) sign off	The proposed activity can proceed under all the following circumstances: The risk has been reviewed to get a ranking as low as possible using the hierarchy of controls The controls identified include those stated in the Codes of Practice, the Australian Standards and in relevant legislation The supervisor must review the document and the effectiveness of the implemented risk controls RA is signed by HOS or MUL All documents to be forwarded to Faculty of Science Office (MUL)
3	Medium priority	Action required this week Requires Facility Manager and Supervisor to sign prior to starting	The proposed activity can proceed under the following circumstances: The risk has been reviewed to get a ranking as low as possible using the hierarchy of controls The risk assessment has been reviewed by the supervisor and the Facility Manager The SOP are in place and implemented
4	Low priority	Hazard may not need immediate attention Requires Facility Manager to sign	Manage by implementation of documented procedure ie: SOPs and Risk register and the use of the hierarchy of controls
5	Monitor Risk	If hazard increases in risk, take action. Requires Facility Manager to sign	Manage by implementation of documented procedures
6	Monitor Risk	If hazard increases in risk, take action. Requires Laboratory manager to sign	Manage by implementation of documented procedures

NOTE: All risk assessment documents must be signed and records kept. A Risk Register for all risk assessments must be kept in each facility. All risk assessments with a **Level of Risk 2 or 1 must also be archived** in the University's Electronic Records management system (TRIM).

4 Implement control measures to eliminate or minimise the risks

The CSU OH&S Risk Rating Procedure does not allow the activity to continue if the hazard scale matrix is 1. Implement control measures (Table 4) to eliminate or minimise the risks and hazards wherever practicable. If it is NOT practicable to eliminate the risks, then the risks need to be reduced through substitution or engineering controls. Control measures are hierarchal and it is important for implantation to start at the highest level.

Table 4 Implement control measures

Hierarchy	Control Measure	Detail
First	Elimination	Eliminate the risk by removing the hazard
Second	Substitution	Substitute less hazardous materials, equipment, processes or substances
Third	Engineering Controls	Isolate hazards through the use of guards etc
		Redesign the work methods by using mechanical aids, use of tools or equipment
Fourth	Administrative Controls	Ensure safe operating procedures are in place, registers, signage, training etc
Fifth	Personal protective equipment	Use appropriately designed PPE for the task eg gloves, eye protection etc

5 Measure and evaluate the effectiveness of the controls

The Facility Manager should incorporate a Risk Management Plan outlining the hazards, priorities, objectives, control measures, target dates, persons responsible, resources, performance indicators, review date and progress. Employees should be consulted and informed about any interim or final plans.

Monitoring can be carried out by:

- inspecting and testing by the supervisor or through audits
- consultation with employees
- observation
- relevant OH&S complaints
- relevant hazard reports
- injury and illness records relating to the risks being controlled

Risk Registers

Each register shall incorporate risks identified from existing risk assessments within the School or Facility. Executives, managers and supervisors shall compile their Risk Register in accordance with all completed Risk Assessments. Templates of RA forms are on the Technical services Webpage – [Risk Management](#). The Faculty of Science has adapted the generic risk register template and has a Faculty of Science [Risk Register template](#). Schools are required to place all risks and potential risks on a risk register. Details for completing the [Risk Register Template](#) are in the [Risk Register Procedure](#) and the relevant compliance documents outlined in this procedure

Where compliance obligations cross multiple areas, coordination of compliance shall be managed through the Heads of School to minimise unnecessary duplication.

A list of Legislation pertinent to the university is listed in Administration Manual [Legislative Guide](#). A [Biological Register](#) and [Chemical Register](#) of legislative compliance and standards are listed on the faculty technical forms and procedures website.

Risk Register Reporting

The Heads of Schools and Centre Directors shall ensure the risk register is maintained at least annually and submitted to the Dean. Any changes to the identified hazards and the level of risk or the risk controls put in place as a consequence of a risk assessment must be reflected in the risk register.

High Risk Work Situations

Certain types of work have inherent risk associated with them and are listed in the OH&S regulation (2001). Many of these situations may be encountered when working in the technical areas or on field trips, eg: [working after hours, or alone](#) or in isolation, working in confined spaces, working at heights, noise, manual handling, etc.

In addition, the Australian Standards Working in Laboratories also lists the following high risk hazards.

HIGH RISK HAZARDS (AS2243.1:2010)

- (a) Operating equipment or machinery, including workshop machinery, capable of inflicting serious injury, such as chainsaws, firearms, lathes and power saws.
- (b) Handling venomous reptiles, insects, arthropods or fish.
- (c) Working with large animals other than for the purpose of feeding or observation.
- (d) Working with, or near, toxic or corrosive substances where there is a significant risk of exposure to the substance, taking into account the volume used.
- (e) Using apparatus that could result in explosion, implosion, or the release of high energy fragments or significant amounts of toxic or environmentally damaging hazardous material.
- (f) Climbing towers or high ladders.
- (g) Working with exposed energized electrical or electronic systems with nominal voltages exceeding 50 V a.c. or 120 V ripple-free d.c. NOTE: These limits are for dry, indoor conditions and a more conservative approach should be taken in other conditions.
- (h) Working with radionuclides requiring a high level laboratory in accordance with AS 2243.4 for Australia
- (i) Working with microorganisms of Risk Group 3 and higher, or which require the use of a Containment Level 3 facility or higher containment level in accordance with AS/NZS 2243.3.
- (j) Operating lasers of Class 3 and above.
- (k) Working in environments not at atmospheric pressure.

Safety Signs

The following are safety signs that may be found on the doors of laboratories. They give an indication to the type of hazard you are likely to encounter:





General Laboratory Procedures

Many of the laboratory procedures detailed below are those that would be considered essential minimum practices in any microbiological laboratory.

- 1 Laboratory doors must be closed when work is in progress.
- 2 Never adopt a casual attitude in the laboratory
- 3 Ensure that personal clothing is suitable for laboratory conditions, e.g. non-slip closed in footwear.
- 4 Use protective clothing and devices appropriate to the type of work, giving due consideration to the work being carried out in the vicinity.
- 5 Identify and control all hazards associated with work in your laboratory.
- 6 Regard all substances as hazardous unless there is definite information to the contrary.
- 7 Wash skin areas which come in contact with chemicals, irrespective of concentration.
- 8 Access to all restricted access laboratories or other areas/facilities laboratories must be authorised by the individual facility manager.
- 9 Do not bring, store or consume food or drink in a laboratory. Eating, drinking, application of cosmetics or smoking is prohibited.
- 10 Do not tongue-moisten labels or chew on pens.
- 11 Mouth pipetting is prohibited. Use an auto-pipettor or other aid.
- 12 Do not drink water from the laboratory taps.
- 13 Storage of food or drink in the laboratory in any storage unit or refrigerator is prohibited.
- 14 Laboratory coats or gowns must be worn during work and removed before leaving the laboratory. (Don't wear lab coats to the tea room).
- 15 Hands must be washed with soap and warm water when leaving the laboratory and after handling cultures.
- 16 For safety reasons all chemicals must be stored in groups according to their class. Simple alphabetical storage or where everything is put together is not acceptable.
- 17 A full listing of all chemicals and quantities must be kept for all labs together with the relevant material safety data sheets (MSDS).
- 18 Waste must be put in appropriate bins or container according to its waste stream.
- 19 All microbiological and contaminated waste must be autoclaved before disposal.
- 20 Equipment used for handling cultures or contaminated material which are not readily autoclaved, must be disinfected after use. A suitable disinfectant for glassware is provided by a hypochlorite solution containing at least 5,000 parts per million of available chlorine (household bleach diluted 1:8 is satisfactory). It must be allowed to act for at least 30 minutes.
- 21 Work benches and surfaces must be decontaminated with a disinfectant solution after spills and when work is completed.
- 22 All disinfectants must be made up daily.
- 23 Biological material taken from the laboratory to an autoclave elsewhere in the building must be carried in a closed, unbreakable outer container.

Handling Hazardous substances

General considerations

In general, the rules for handling dangerous liquids and solids are much the same:

- Use a fume hood at all times for all transfer reactions. If this is not possible, use a face mask equipped with the appropriate filters.
- Use approved gloves - not all gloves are suitable for all solvents.
- Practice procedure on safe materials first in order to optimise technique/ minimise time/ distance factors. Use shields. Monitor the work area and yourself.
- Label all bottles clearly (no abbreviations) and with appropriate warning signs.
- Learn to read and understand the hazardous chemical "diamond" code.
- Store carcinogens separately with limited access only by authorised persons.
- Store excess quantities of solvents in flammable solvents cabinets.
- Dispose of all wastes safely.
- Clean up all spillages immediately, and report them where necessary.

Flammable solvents

There are special rules regarding the SAFE handling of flammable solvents:

- Reagents in use - no special storage.
- Generally speaking, one or two winchesters of solvents can be kept in a lab.
- Larger amounts of solvents or solvents not in use must be stored in a flammable liquids cabinet.
- Acids/corrosives MUST NOT be stored with flammable liquids. In some Laboratories there are special (blue) cabinets for the storage of corrosives in most laboratories.
- Solvents/flammable liquids MUST NOT be stored in conventional 'household' refrigerators. Nearly all the refrigerators in most laboratories are of this type.
- When using solvents make sure that you have an appropriate fire extinguisher nearby and that you know how to use it.
- Maximum of one 250 Litre cabinet for each 250 m² floor area.
- Should have DRY chemical powder extinguisher near each cabinet.

Gases and pressure vessels

There are special rules regarding the SAFE handling of gases:

- Secure all cylinders.
- Transport cylinders by trolley only.
- Make sure that there are no leaks when you put the pressure gauge on the bottle.
- Check the seal using water or a soap solution to check for bubbles.
- Ensure adequate ventilation for exhaust gases.
- Only those gases currently in use may be kept in the laboratory, all empties and gas bottles not going to be used for some time must be returned to the gas storage area.

General safety hints

- When inserting glass tubing into rubber bungs, lubricate the glass with soap or glycerol. Do not twist the glass. If possible protect your hands with leather gloves.
- Cut silastic tubing off glassware. Do not try to pull it off as the tubing may stick and the glass will break.
- When removing objects from the autoclave or water baths wear leather gloves to protect against steam burns.
- If you microwave solutions, be sure to loosen the cap to prevent a build up of pressure. **Wear leather gloves and safety glasses** in case the flask breaks or explodes.
- Do not tinker with electrical equipment and report all frayed wires, etc.
- Do not use electrical equipment near water.
- Clean up ALL spillages immediately even if it is not your own doing.
- Be aware of where the fire extinguishers are in your laboratory and how to use them.

- Know where the nearest first aid kit is.
- Do not leave naked flames unattended.
- Label all chemicals and items clearly as per the [Chemical Labelling Procedure](#).
- Minimise the creation of aerosols.
- All work done in a PC2 Laboratory must follow PC2 procedures whether or not recombinant DNA work is involved. NOTE: PC2 PROCEDURES ARE SUBSTANTIALLY MORE STRINGENT THAN THE GENERAL PROCEDURES OUTLINED HERE.
- All radiation work must be carried out in accordance with the Radiation Safety Manual and the correct approval process.

Safety in Laboratories – Australian/New Zealand Standards

Use the website <http://www.saiglobal.com/online/autologin.asp> to print out a hardcopy of the following for the Laboratory:

All Laboratories:

AS/NZS 2243.1	General Safety in Laboratories
AS/NZS 2243.10	Storage of Chemicals
AS/NZS 2243.2	Safety in laboratories - Chemical aspects

Radiation laboratories AS/NZS 2243.5 - Safety in laboratories - Non-ionizing radiations - Electromagnetic, sound and ultrasound

Requirements for PC1 and PC2 Facilities

Where microbial use is intended the standard AS/NZS 2243 3:2010 Microbiological Aspects and Containment Facilities should be **printed and used**. There are different requirements for plant and animal facilities.

Australian Standards are used to assess PC1 and PC2. CSU is in the process of building a PC3 facility. CSU has PC2 and PC1 classified facilities listed in the [Biosafety Manual](#). If GMO work is to be carried out, the facility must be certified by OGTR in a separate application.

Containment required when working with GMO's

The Office of the Gene Technology Regulator (OTGR) recognises four classes of dealings with GMO's which are outline on the website <http://www.ogtr.gov.au/>

The term 'dealings', in relation to a genetically modified organism (GMO) is defined in the *Gene Technology Act 2000* (the Act). **Deal with**, (possession, supply or use of) in relation to a GMO, means the following:

- *conduct experiments with the GMO;*
- make, develop, produce or manufacture the GMO;
- breed the GMO;
- propagate the GMO;
- use the GMO in the course of manufacture of a thing that is not the GMO;
- grow, raise or culture the GMO;
- import the GMO;
- transport the GMO;
- dispose of the GMO;

Containment Required when Dealing with Imported Biologicals

Australian Quarantine Inspection Service (AQIS) regulates importation and work with imported biological (organisms or tissue from organisms) or with material likely to contain biologicals (water, soil, etc). The facility must be AQIS approved. The CSU Institutional

Biological Safety Committee must give approval prior to acquiring or attempting to acquire quarantine material. Permission and details outlining procedures to obtain permits and approvals are contained at: <http://www.daff.gov.au/aqis/import/application/product-table>

Manual Handling in the Workplace

Manual tasks are very often overlooked as a hazard. This section is provided to raise your awareness of manual handling as a controllable hazard.

Manual Tasks

Manual tasks cover a wide range of activities including lifting, pushing, pulling, carrying, moving, holding, throwing and restraining. It also includes repetitive tasks such as cleaning, sorting, packing, assembling, typing, using hand tools, and operating machinery and equipment.

What injuries can occur from manual tasks?

Injuries that occur from manual tasks are generally referred to as musculoskeletal disorders (MSDs). They include injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs. Examples of MSDs include carpal tunnel syndrome, rotator cuff syndrome, de Quervain's disease, trigger finger, carpet layer's disease, tarsal tunnel syndrome, epicondylitis, Raynaud's phenomenon, tendonitis, sciatica, herniated spinal disc, repetitive strain injury, and lower back pain.

Musculoskeletal Disorders

Manual handling can lead to injury through the development of musculoskeletal disorders. Musculoskeletal disorder (MSD) is a term that describes injuries affecting the bones and soft tissue structure (other than organs) of the body that are caused by manual tasks at work. Examples include sprains or strains of muscles or tendons; injuries to the back, joints, bones or nerves and abdominal hernias. Musculoskeletal disorders encompass injuries also known as Repetitive Strain Injuries (RSI) or Occupational Overuse Syndrome (OOS). There are a number of factors which by themselves or in combination increase the risk of a person developing a musculoskeletal disorder. These individual 'risk factors' include

- **Awkward postures** - includes reaching behind, twisting, working overhead, kneeling, forward or backward bending, and squatting.
- **Static postures** - body postures that are held and require muscle contraction for more than a short time.
- **force exerted**, the amount of physical effort required by the person to do a task and/or to maintain control of tools and equipment.
- **repetition and speed** of movements made, performing the same motions repeatedly
- **vibration**, reduces blood flow and sensory response
- **time taken** to complete a task.
- **high temperatures** increase the rate at which the body experiences fatigue
- **low temperature** reduces sensory feedback, dexterity, blood flow, muscle strength and balance

All of these individual risk factors are in turn influenced by the design and set up of the workplace and individual workstations; the work environment; the characteristics and location of items and by how work is organised and the systems of work in place. There is assistance using an [ergonomic self assessment guide](#).

Infection Control

It is important in the workplace to follow guidelines to prevent infection. The Faculty requires all staff and students are to use [Australian Guidelines for the Prevention and Control of](#)

[Infection in Healthcare \(2010\)](#) and [NSW Health Infection Control Policy](#) as a standard precaution. Standard precautions must also be practised by staff and students when involved in clinical placements or work experience. Each school may have additional policies or procedures.

Immunisation / Vaccination

Faculty staff and students are at increased risk of vaccine preventable diseases when:

- working with infectious organisms
- working with body fluids or human blood
- working with animals
- working with soil
- a nominated first aid officer
- conducting fieldwork
- laboratory cleaners
- travelling overseas

Vaccinations should be in accordance with the recommendations of the [Australian Immunisation Handbook](#). In addition, there are [vaccinations for those at occupational risk](#) where staff may potentially be exposed to biological agents that can transmit vaccine preventable diseases. These recommendations are based on the diseases that they are likely to be exposed to in the workplace.

The Heads of School and Facility Managers should determine individual risk for their staff by conducting a [Risk Assessment](#). Line managers are responsible for the implementation of [vaccinations for those at occupational risk](#) where staff may be exposed to vaccine preventable diseases.

NSW Health has an immunisation policy, [Occupational Screening, Assessment and Vaccination Against Specified Infectious Diseases](#) PD2011_005, that all staff and students at health facilities must undergo mandatory vaccination.

All staff and students must undergo vaccination against infectious diseases prior to work or placement within the NSW Health System. Results of these vaccinations are kept on a personal record (available from the School through which the student is studying). This card must be presented upon request by NSW Health staff whilst the student is on placement. Local Health Districts may also request their own specific forms are used.

As many courses involve a student clinical practicum in the first semester of study, the Hepatitis B immunisation for students should be commenced early, in order for full immunisation status to be attained prior to clinical placements. Further information is available from [NSW Health](#).

Precautions for Women and Immunosuppressed

Precautions for Women

[Pregnancy and Work Guide](#) published by Workcover NSW is an excellent reference guide for dealing with precautions for women in the workplace, particularly in laboratory, human and animal health where there are potential hazards. For specific advice, also refer to Chapters 4 and 6 of the *Occupational Health and Safety Regulation*.

Employees who are breastfeeding, pregnant or planning parenthood must be made aware of the potential risks to an unborn child, conception and foetal development, and breastfeeding. [Risk Assessments](#) shall be conducted, and controls implemented specifically for work situations outlined in the Guide. A control plan should be regularly reviewed throughout pregnancy stages. Those workers who could be adversely affected can elect not to perform certain duties. Often medical opinion may be required when determining protection methods.

The potential hazards occur when working with certain: biological, chemical and physical

agents and substances are listed below.

Biological

When using micro organisms, or working with animals, soil or people, the microbes that are known to cause problems in pregnant women are: *Toxoplasma gondii*, *Listeria monocytogenes*, cytomegalovirus, parvovirus B19, rubella virus, Varicella-zoster virus (VZV) (chickenpox), human immunodeficiency virus, *Chlamydia psittaci*, *Coxiella burnetii* and hepatitis B, C and E viruses and some fungi.

Other microbes documented that may or may not have an adverse effect on the foetus are: *Borrelia burgdorferi* (Lyme disease), *Campylobacter spp* and *Salmonella spp* (gastroenteritis), *Lymphocytic choriomeningitis virus* (LCM), *Mycobacterium tuberculosis* (TB), *Treponema pallidum* (syphilis).

Chemical

Some carcinogenic substances, or processes using them, have specific guidance on recommended control measures. If [carcinogenic substances](#) are used, WorkCover NSW Guide must be followed and [Prohibited and Notifiable Carcinogenic Procedure](#) must be followed. Examples of these are: lead and lead compounds, cytotoxic drugs carbon monoxide, carcinogens, mercury and mercury compounds, organophosphate pesticides.

Toxic substances damage an organism when the chemical is either; absorbed, inhaled, or ingested. The risk assessment should take each route into account. Examples are: are carbon disulphide, cyanides, dimethyl sulphate, dioxane, methyl bromide, MOCA, organic mercury compounds, and polychlorinated biphenyls (PCBs).

Anaesthetic vapours (mainly nitrous oxide, enflurane, halothane and isoflurane) have indicated an association between exposure to and increases in miscarriages and birth defects among theatre staff in studies performed since the 1970s. However, there is no definite evidence to show that exposure to any of these anaesthetic agents in the workplace has caused reproductive health effects. Nitrous oxide, enflurane, halothane and isoflurane have been shown to cause embryotoxic, foetotoxic or teratogenic effects (congenital abnormalities) in a number of animal species. (source: Pregnancy and Work Guide 2002; NSW Workcover).

Physical

Examples of these include: ionising radiation, manual handling, standing for long periods, noise, vibration and heat exposure.

The potential for radiation effects on a foetus depend on the time of irradiation relative to conception, and to the magnitude of the radiation exposure. Employers must ensure that an appropriate monitoring system is in operation to ensure that the occupational exposure of the pregnant employee is below the 1 mSv effective dose limit specified for members of the public. This monitoring may involve personal monitors and/or area monitoring of the workplace. References for further information are:

[Recommendations for limiting exposure to ionizing radiation](#) (1995) (Guidance note [NOHSC:3022(1995)]); [National standard for limiting occupational exposure to ionizing radiation](#) [NOHSC:1013(1995)]; [Radiation Control Regulation 2003](#).

Immuno suppressed

Persons who are immuno-suppressed or compromised and intend to handle human pathogens should inform their supervisor, so that appropriate action can be taken. Classes conducted in which biological agents are used must inform all students so that they can make informed consent as to whether it may have a detrimental effect on their health. Medical opinion may need to be sought.

Material Safety Data Sheets, Chemical Labelling and Handling

Labelling Chemicals

This is an extremely important aspect of laboratory safety and part of good housekeeping. Where the substance is used immediately, no labelling is required (a rare occurrence). If the chemical will be stored in the lab or used within 12 hours, a label must be made in legible English and firmly attached to the container. At a minimum it should contain the following items -

Product Identification – the name by which the substance is known eg. Trade name/product name, chemical name – **DO NOT USE ABBREVIATIONS.** (e.g. EtOH or PBS) write out the contents in full (e.g. Ethanol or Phosphate Buffered Saline pH 8.4).

Ingredients – a full listing if it is a mixture

Signal Words – indicating the severity of a hazard, eg. HAZARDOUS, POISON etc

Dangerous Goods Class label and UN (United Nations) Number - Indicate the major hazard, eg. Flammable liquid

Risk and Safety Phrases, eg 'R25 - Toxic if swallowed' and 'S15 - Keep away from heat'

Risk Phrases convey a general description of the hazard with normal use of the substance.

Safety phrases provide information on safe storage, handling and personal protection.

Safe Use directions – detailing quantities and procedures for use, eg mixing instructions

First Aid Phrases – for exposures requiring immediate treatment eg 'If eye contact occurs, wash eye immediately'

Emergency Procedures – giving details on how to control a spill, leak or fire

Details of supplier – including name, address and telephone number in Australia

Obviously, it is not always possible to include the full amount of information on smaller containers, or larger containers which will be used within 12 hours. The most important information to be attached is: **Product name/Chemical name, Signal words and Dangerous Goods Class labels, Risk and Safety Phrases, First aid procedures**

For more detail see the [Chemical Labelling Procedure](#).

Chemical Storage

General storage tips

- Think about the size of the package when purchasing. Laboratories have limited storage space and limits on chemical quantities they can store. Do not buy in bulk because it is cheaper, if you are not intending to use that amount by the use by date.
- List all chemicals stored in a laboratory in the laboratory's Chemical Inventory (this can be on Chemgold III, but there must be a printed copy available).
- Control your inventory. Only keep minimum amounts. Minimising chemicals directly reduces the hazards posed by them.
- Inspect storage areas regularly, keep clean and tidy and dispose of outdated chemicals appropriately.
- Outdated and unwanted chemicals should be collected regularly by the chemical waste contractor
- Storage areas should be clearly identified with Dangerous Goods symbols.
- Cabinets or cupboards are preferred to open shelving.
- Label shelves and cupboards with a segregation scheme so that chemicals can be quickly put away in the correct place.
- Use secondary containment at all times for large volumes of liquids.
- Do not store liquids above solids due to the risk of contamination should a breakage

occur.

- Do not store containers on the floor.
- Limit the size of containers on open shelves to less than 5 lit or kg, otherwise use a storage cabinet.
- Use the compatibility reports produced by Chemgold III to check your storage areas.
- Hazardous Substances must be kept in areas with restricted access.

Even chemicals within the same DG class may need to be separated, for example strong acids and alkalis are both Class 8, but should never be stored together. Store the chemical according to the Dangerous Goods class **and** compatibility.

Segregation tips

- The easiest and most efficient way to separate chemicals by compatibility group is to use secondary containment:
- Place the chemicals to be stored separately in a heavy gauge plastic tub
- Plastic secondary containers must be compatible with the material being stored
- Strong acids, especially perchloric, nitric and hydrofluoric are best stored in plastic containers designed to store strong mineral acids. These are available from laboratory equipment suppliers
- Dry chemicals stored in approved cabinets may be grouped together by compatibility type, on separate shelves or segregated in areas of shelving
- Ensure incompatible chemicals are physically separated when stored. Physically separated cabinets may be used to provide a barrier
- Refer to MSDS for specific incompatibilities.

For more detail see *Chemical Storage Guidelines*

Chemgold

The University uses a chemical data base called **ChemGold III**. It contains thousands of chemical records and Material Safety Data Sheets (MSDS's). These records provide information to allow you to evaluate the potential hazards and the safe handling requirements for each product. All products have been given a colour rating which gives a quick visual indication of their potential hazards.

Chemgold MSDS's are available to all CSU staff and students. Access to manifests is password restricted.

[Chemgold III](#) link is on the Technical Services webpage. To gain access, check with Jim Watt x84373 or Leanne Hawkins x32356

Risk and Safety Phrases

Relevant Chemical Risk Phrases

- R20 Harmful by inhalation.
- R21 Harmful in contact with skin.
- R22 Harmful if swallowed.
- R23 Toxic by inhalation.
- R24 Toxic in contact with skin.
- R25 Toxic if swallowed.
- R26 Very toxic by inhalation.
- R27 Very toxic in contact with skin.
- R28 Very toxic if swallowed.
- R29 Contact with water liberates toxic gas.
- R30 Does not apply. Not health effect. See complete list.
- R31 Contact with acids liberates toxic gas.
- R32 Contact with acids liberates very toxic gas.
- R33 Danger of cumulative effects.
- R34 Causes burns.
- R35 Causes severe burns.
- R36 Irritating to eyes.
- R37 Irritating to respiratory system.
- R38 Irritating to skin.
- R39 Danger of very serious irreversible effects.
- R40 Possible risk of irreversible effects.
- R41 Risk of serious damage to eyes.
- R42 May cause sensitisation by inhalation.
- R43 May cause sensitisation by skin contact.
- R44 Does not apply. Not health effect. See complete list.
- R45 May cause cancer.
- R46 May cause heritable genetic damage.
- R48 Danger of serious damage to health by prolonged exposure.
- R49 May cause cancer by inhalation.
- R60 May impair fertility.
- R61 May cause harm to the unborn child.
- R62 Possible risk of impaired fertility.
- R63 Possible risk of harm to the unborn child.
- R64 May cause harm to breastfed babies.
- R65 Harmful: May cause lung damage if swallowed.

Combination Risk Phrases

- R 14/15 Reacts violently with water liberating highly flammable gases.
- R 15/29 Contact with water liberates toxic, highly flammable gas.
- R 20/21 Harmful by inhalation and in contact with skin.
- R 20/22 Harmful by inhalation and if swallowed.
- R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
- R 21/22 Harmful in contact with skin and if swallowed.
- R 23/24 Toxic by inhalation and in contact with skin.
- R23/25 Toxic by inhalation and if swallowed.
- R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R 24/25 Toxic in contact with skin and if swallowed.
- R 26/27 Very toxic by inhalation and in contact with skin.
- R 26/28 Very toxic by inhalation and if swallowed.
- R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
- R 27/28 Very toxic in contact with skin and if swallowed.
- R 36/37 Irritating to eyes and respiratory system.
- R 36/38 Irritating to eyes and skin.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 37/38 Irritating to respiratory system and skin.
- R 42/43 May cause sensitisation by inhalation and skin contact.

Relevant Safety Phrases

- S 1 Keep locked up.
- S 2 Keep out of reach of children.
- S 3 Keep in a cool place.
- S 4 Keep away from living quarters.
- S 5 Keep contents under [appropriate material to be specified by the manufacturer].
- S 6 Keep under [inert gas to be specified by the manufacturer].
- S 7 Keep container tightly closed.
- S 8 Keep container dry.
- S 9 Keep container in a well ventilated place.
- S 12 Do not keep the container sealed.
- S 13 Keep away from food, drink and animal feeding stuffs.
- S 14 Keep away from [incompatible materials to be specified by the manufacturer].
- S 15 Keep away from heat.
- S 16 Keep away from sources of ignition - No smoking.
- S 17 Keep away from combustible material.
- S 18 Handle and open container with care.
- S 20 When using, do not eat or drink.
- S 21 When using, do not smoke.
- S 22 Do not breathe dust.
- S 23 Do not breathe gas/fumes/vapour/spray
- S 24 Avoid contact with skin.
- S 25 Avoid contact with eyes.
- S 29 Do not empty into drains.
- S 30 Never add water to this product.
- S 33 Take precautionary measures against static discharges.
- S 34 Avoid shock and friction.
- S 35 This material and its container must be disposed of in a safe way.
- S 36 Wear suitable protective clothing.
- S 37 Wear suitable gloves.
- S 38 In case of insufficient ventilation,, wear suitable respiratory equipment.
- S 39 Wear eye/face protection.
- S 40 To clean the floor and all objects contaminated by this material, use
- S 41 In case of fire and/or explosion, do not breathe fumes.
- S 42 During fumigation/spraying, wear suitable respiratory equipment [
- S 43 In case of fire use ... [manufacturer to specify the precise type of firefighting equipment. If water increases the risk, add - Never use water].
- S 47 Keep at temperature not exceeding ... ° [to be specified by the manufacturer].
- S 48 Keep wetted with ... [appropriate material to be specified by the manufacturer].
- S 49 Keep only in the original container.
- S 50 Do not mix with ... [incompatible materials to be specified by the manufacturer].
- S 51 Use only in well ventilated areas.
- S 52 Not recommended for interior use on large surface areas.
- S 53 Avoid exposure - obtain special instructions before use

Combination Safety Phrases

- S 1/2 Keep locked up and out of reach of children.
- S 3/7/9 Keep container tightly closed in a cool, well ventilated place.
- S 3/9 Keep in a cool, well ventilated place.
- S 3/9/14 Keep in a cool, well ventilated place away from
- S 3/9/14/49 Keep only in the original container in a cool, well ventilated place away from
- S 3/9/49 Keep only in the original container in a cool, well ventilated place.
- S 3/14 Keep in a cool place away from ...
- S 7/8 Keep container tightly closed and dry.
- S 7/9 Keep container tightly closed and in a well ventilated place.
- S 20/21 When using, do not eat, drink or smoke.
- S 24/25 Avoid contact with skin and eyes.
- S 36/37 Wear suitable protective clothing and gloves.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 36/39 Wear suitable protective clothing and eye/face protection.
- S 37/39 Wear suitable gloves and eye/face protection.
- S 47/49 Keep only in the original container at temperature not exceeding .XX..

Waste

Waste Disposal from Science Facilities General Principles

Below is a summary of Waste disposal methods at the university. More detail is obtained by referring to the [Fsc Waste Management Procedure](#) and the *Waste Guidelines*, as well as the Standard Operating Procedures in your facility.

The FSc requires individual Facility Managers to document and manage the segregation and disposal of waste into the waste streams. Develop individual facility waste management systems (e.g. SOPs for segregation, storage and disposal of waste).

CSU aims to minimise waste creation, so ordering and using smaller quantities is preferred. Where possible, substitute items with a non hazardous or less hazardous material, and recycle and reuse materials where practicable.

Get quotes for the disposal costs of waste before beginning a project. Obtain quotes for chemical waste disposal costs from Chemsal before using chemicals.

Local Standard Operating Procedures for waste disposal shall be written for each location and all relevant waste streams. Waste disposal shall also be covered in Risk Assessments.

All laboratories (up to PC2/GMO lab) shall have a bin clearly labelled 'General Laboratory waste'. This bin is to be filled only with non hazardous waste and non contaminated /non infectious waste. The 'General Laboratory Waste' bin is emptied by cleaner/janitors. In most laboratories, it will contain only used hand towel and packaging from consumables.

An appropriate spill kit and spill procedures must be readily accessible in all locations where waste is stored.

Waste Streams

- Office and general waste (including general laboratory waste) – includes non hazardous waste managed by the Department of Facilities Management (DFM).
- Trade waste - DFM negotiate trade waste agreements with relevant councils. The Facility Managers will provide specialist input for the FSc Facilities they manage on request.
- Hazardous waste - Facility Managers are responsible for ensuring hazardous waste is disposed of appropriately and through a suitably registered waste contractor.
- Special waste -
 - Clinical and related waste must be segregated into its many components. Laboratory wastes containing or potentially containing live organisms must be sterilised by pressure steam sterilisation or treated with chemical disinfectant. This sterilisation process must be documented and logged with proof of effective sterilisation.
 - Any asbestos issues relating to buildings are the responsibility of DFM and the Manager of Occupational Health and Safety.

The Facility Manager can introduce additional waste streams after completing a risk assessment (see Risk Assessment Procedure) and implementing the appropriate controls.

Waste Definitions and Terms

Special waste - as defined in the legislation: *clinical and related waste, Asbestos waste and waste tyres*

Clinical and related waste- The definition of 'clinical and related waste' under the Protection of the Environment Operations Act 1997 includes clinical waste; cytotoxic waste; pharmaceutical, drug or medicine waste; and sharps waste.

Animal waste – Waste of whole or part of an animal or excreta, from medical or veterinary treatment. Includes animal tissue where it is contaminated with and infectious organism or treated with chemical classified as hazardous waste.

Clinical waste - human tissue waste, laboratory waste, animal waste resulting from medical or veterinary research or treatment which has the potential to cause disease

Cytotoxic waste - material including sharps, that is contaminated with a cytotoxic drug. Cytotoxic drugs are toxic compounds known to have carcinogenic, mutagenic and/or teratogenic potential.

Human tissue waste – body tissue, organs limbs and any free flowing liquid body substance e.g. blood. Excludes; hair, nails and teeth.

Laboratory waste – any specimen or culture discard, including genetically manipulated material and imported biological.

Sharps - Any item with a sharp point or edge capable of cutting, piercing or penetrating skin.

Pharmaceutical waste - waste material arising from pharmaceutical products that have passed their recommended shelf life, drug components generated during manufacture.

Schedule 8 Drug – Drugs listed as schedule 8 in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) which are known as Drugs of Addiction.

Chemical waste - Any unwanted chemical, unidentified chemical mixture, compound or material that is contaminated with chemicals.

Hazardous waste – is a threat or risk to public health and safety or the environment. This includes anything that is: infectious, toxic, mutagenic, carcinogenic, teratogenic, flammable, corrosive, explosive, oxidative or radioactive. Taken from *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission 2008):

- Class 1: Explosives
- Class 2: Gases (compressed, liquefied or dissolved under pressure)
- Division 4.1: Flammable solids (excluding garden waste, natural organic fibrous material and wood waste, and all physical forms of carbon such as activated carbon and graphite)
- Division 4.2: Substances liable to spontaneous combustion (excluding garden waste, natural organic fibrous material and wood waste, and all physical forms of carbon such as activated carbon and graphite)
- Division 4.3: Substances which when in contact with water emit flammable gases
- Class 5: Oxidising agents and organic peroxides
- Division 6.1: Toxic substances
- Class 8: Corrosive substances.

Radioactive waste - Material classified as hazardous or non-hazardous radioactive waste.

Non Hazardous Radioactive Waste is classified as a specific activity less than 100 becquerels per gram (2.7 nCi/gm or 2.7 µCi/Kg) or a total activity of:

- less than **40 kBq** (~ 1µCi) of Group 1 radionuclides or
- less than **400 kBq** (~ 10 µCi) of Group 2 radionuclides or
- less than **4 MBq** (~ 100 µCi) of Group 3 radionuclides or
- less than **40 MBq** (~ 1 mCi) of Group 4 radionuclides.

Hazardous Radioactive Waste is material or substances with activity levels above the non hazardous radioactive waste levels and must be stored in accordance with Radiation Safety Committee procedures prior to disposal.

Liquid waste means any waste that:

- has an angle of repose of less than 5 degrees above horizontal, or
- becomes free-flowing at or below 60 degrees Celsius or when it is transported, or
- is generally not capable of being picked up by a spade or shovel.

Restricted solid waste is waste that is not 'special' or a liquid or preclassified by Environmental Protection Authority, or a waste possessing hazardous characteristics

General solid waste non putrescible glass plastic rubber, paper and cardboard and generally items that can be recycled in a waste stream, building and demolition waste

General solid waste putrescible is household waste that contains organic material (and animal waste – any dead animal).

Segregation – the classifying waste and placing it into an appropriate container immediately after the waste is generated.

Waste any matter whether solid, liquid, gas or radioactive.

Waste stream movement of materials for the point of generation to the destined disposal.

Summary of Waste Collection

Please refer to the *Local Laboratory manual* and specific SOP for the waste management procedures in the laboratory you are working in

Chemical Waste

Facility Managers are to co-ordinate the collection and storage of chemical waste prior to its collection by contractors. Chemical waste is **not** to be tipped down the sink.

All chemical waste generated for the purposes of teaching or research shall be clearly labelled using a label (additional information may be added if required) with the words **Hazardous Waste** clearly visible. Ensure that the label on Hazardous waste requires the following information:

- Chemical name /type
- Specific Hazard information as per MSDS
- Emergency information: as per MSDS
- Person responsible for generating the waste
- Location: Building and room number or name where waste was generated.

Collection points should have restricted access, dedicated to waste storage only and be

signed accordingly. Bunding is required at all waste collection points appropriate to the size of the containers. The height of the bund required depends on the volume of liquid in storage and normally is 120% of the size of the original container. There must be ready access to chemical spill kits including PPE and be kept close to where waste is stored.

Segregation

Waste chemicals are stored in appropriate containers. The same rule applies for chemical waste as for chemical storage. Waste should be segregated in accordance with chemical compatibility and Dangerous Goods class. Where many different substances are being used and it is not practicable to have separate containers for each individual substance the following waste categories are acceptable:

- Halogenated Hydrocarbons
- Non-Halogenated Hydrocarbons
- Aqueous Waste – Acid [dilute solutions less than 5M*]
- Aqueous Waste – Alkali [dilute solutions less than 5M*]
- Aqueous Waste with Heavy Metal Content
- Aqueous Waste with non-Heavy Metal Content

Any acids or alkalis more concentrated than this should **not be mixed and should be stored for pick-up by the chemical waste contractor as their individual constituent (eg. hydrochloric acid, nitric acid etc).*

- Where metal drums are used for waste transport, they must be placed in spill containment trays at all times to contain the waste in the event of a leak.
- Glass containers should be packaged to minimise damage to the container. Glass winchesters should be transported in polypacks, racks, or other suitable non breakable container.
- Peroxide forming compounds (e.g. diethyl ether,) must have a date of receipt and opening written on the container. The maximum storage period must not have expired. This is generally six months.
- Unknown waste is handled on a case by case basis. Avoid generating Unknowns by keeping good records of the waste you produce and diligently labelling all waste containers.

Disposal

Each school is responsible for their waste removal costs, so quotes should be sourced prior to collection. For collection of chemical waste, complete a [Chemsal Manifest Waste Form](#), identifying the type of waste to be collected, and label containers with identifying unique number. Create a chemical waste manifest for your laboratory/location. The waste contractor will pick up waste from the designated area. It is the responsibility of the generator of the waste to ensure that the contractor has been informed of the chemicals on the manifest to be collected and their location.

Clinical waste

Clinical waste has the potential to cause injury, disease or infection. This includes:

- Laboratory and associated waste - includes Genetically Modified Organisms (GMO's)
- Human tissue including tissue and flowing blood
- Animal tissue or carcasses that are or are suspected of containing pathogenic organisms
- Prions

Laboratory and Associated Waste

Laboratory and associated waste includes all specimens used for laboratory testing, cultures or suspensions of microorganisms, used petri dishes, culture bottles, used gloves, disposable consumables. All wastes containing or potentially contaminated with live microorganisms **must** be:

- decontaminated by pressure steam sterilisation (autoclaving) or
- chemically decontaminated (see AS/NZS 2243.3 section 10 and 12)

before disposal.

All steam sterilising must be monitored and recorded as per the standards (2243.3 section 12). [Template forms](#) are available on the [Technical services](#) website, and thermalogs are available from the [Laboratory Store](#).

Liquid cultures of RG1 & RG 2 that have been decontaminated by pressure steam sterilisation may be disposed of down the sink to sewer.

For all work in PC1 laboratories: all waste from micro organism sources must be decontaminated, and if steam sterilised, should be disposed of by placing in a Yellow Clinical bin for disposal by a contractor. In some locations, disposal of sterilised microbiological waste can be accepted into general waste (ie destination landfill). This can only be done at CSU where the procedures and protocols are documented and comply with legislative and local council waste regulations.

For all work in a PC2 laboratory and all GMO work: all laboratory and associated waste must be decontaminated in the facility. The steam sterilised waste **MUST** be placed into a Yellow Clinical bin for disposal from CSU by a licensed contractor. If the waste has been chemically decontaminated waste it must be disposed of as **chemical waste**.

All potentially infectious biological agents and GMO's shall be transported in a primary receptacle contained within an **appropriately labelled** secondary receptacle at all times, including in its waste form, to the location of the sterilisation.

Genetically Modified Organism Requirements

All wastes containing GMO's or by-products derived from GMO's, or those that **may** be contaminated with GMO's, must be signed for with a declaration that identifies the material, the project and the organism as well as the licence (exempt/NLRD/Licences) numbers. All waste must be decontaminated by pressure steam sterilisation (autoclaving) or chemical treatment as per AS/NZS 2243.3 (section 12) and the appropriate paperwork completed and compliance records filled out **before** collection and disposal by the waste contractor. Further details are available in the [CSU Biosafety Manual](#) and all handling must comply with the [Office of Gene Technology Regulator](#).

- [Policy on storage and transport and supply of GMO's](#)
- [Guidelines for transport, storage and disposal of GMO's](#)

Human tissue including tissue and flowing blood (excludes teeth hair and nails)

Human tissues or flowing blood must never be placed in the ordinary garbage even if decontaminated.

Small quantities of human tissue waste (eg blood on test strips /blood on paper towel, human sputum) shall be collected in a robust plastic bag (autoclave or yellow clinical bag) displaying the biohazard symbol. This waste must be placed into a lined Yellow Clinical bin for removal by contractors.

Glass

Ensure the any contamination hazard that may be present on the glass is taken into account before disposal, and decontaminate and triple rinse prior to placing in the waste receptacle.

- Broken glassware that is contaminated with chemicals and cannot be safely decontaminated must be collected up in a sturdy container with a plastic liner. This shall then be disposed of as chemical waste.
- Glassware that is broken and cannot be safely decontaminated must be disposed of as clinical/biological waste.
- Larger broken items can be placed directly in the skip bin.
- Small pieces of broken glass and decontaminated glass slides should be placed in an AS4031 sharps container.

Sharps

All sharps waste must be stored either in locked cupboards or in a room that is restricted to authorised personnel only and is locked when unattended. Once clinical sharps are used, (or otherwise wanting to be disposed of), they must be placed in designated sharps waste containers.

Radiation

CSU requires permission to dispose of radioactive waste. The CSU [Radiation Safety Committee](#) should be contacted for advice regarding your radioactive waste disposal requirements. A general rule of thumb is that waste is considered to be 'radioactive' if it has an activity level greater than 100 becquerels per gram of material [2.7mCi/kg].

Horticulture, Containment Facilities and Glasshouses

Plant Containment Facilities / Glasshouses

There are four levels of Plant containment (PC1 to PC4) facilities for use with general plant work and the level depends on the relevant risks associated with the plant or pathogens spreading into the environment. CSU has only PC 1 and PC2 facilities. Genetic manipulation can only be performed in the PC2 facility and these must also comply with OGTR regulations and guidelines.

General Safety Rules

- Wet floors in the glasshouses can be slippery and present a slip hazard.
- Take special caution with electrical equipment in damp environments.
- Hoses and equipment must be stored correctly to not present a trip hazard.
- Only authorised personnel may spray pesticides in the glasshouses.
- No eating or drinking, particularly from hoses, is permitted in the glasshouses.
- Climbing on to the glasshouse roof is not permitted.
- General good horticultural and agricultural practice should be undertaken

PC1 Plant Containment Facilities

These are for use with plants that are unlikely to cause human plant or animal disease, and have not been genetically modified.

Entrances to the facility must have signs that it is a PC1 facility and the type of plants contained therein. The CSU Faculty of Science facility sign with contact details must be posted at the entrance.

PC2 Plant Containment Facilities

These are for use with plant material or plant pathogens that that fall within Risk Group 2 and can cause human, plant or animal disease but unlikely to be a serious hazard to the environment, lab workers, or livestock.

Authorisation requirements for all PC2 Plant House personnel and for the transfer of living plants and tissue to another organisation: are outlined in the: Biosafety Manual, [Guidelines for Certification of Facilities/Physical Containment Requirements](#) and AS2243.3 Standards and plant house procedures

Noxious Weeds

General weed information regards species and regions is available at:

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds>

The Noxious weeds Act and Regulations, as well as weed control orders are listed on the following web page: <http://www.dpi.nsw.gov.au/aboutus/about/legislation-acts/noxious-weeds>

For research and projects involving noxious weeds, applications for permits must be gained under the Noxious weeds Act 1993. A permit from the NSW Department of Primary Industries is required for all work involving University projects/ work and all work that is undertaken within the University for the following:

- Move notifiable noxious weed material for purposes of destruction
- Grow or store noxious weed material for education or research
- Work on noxious weeds - permission from the Facility Manager and a Risk Assessment approved by the Head of School. On obtaining the permit, a copy should be attached to the project risk assessment that is held by the Facility Manager.

Field and Farm Work

Field Work

Field work inherently involves situations that are of higher risk due to the nature of the travel and environmental conditions. The use of a Risk Assessment to identify hazards and the controls subsequently implemented is essential. Operating procedures must be documented and inductions and assessment of competency levels must be undertaken. All Risk assessments must be signed by the appropriate authority prior to commencement. Some of the major hazards are

- Travelling long distances
- Isolation for communication
- Isolation from emergency services
- Environmental factors including inclement weather
- Working alone and /or in isolation
- Snakes bites insect bites and stings
- Water safety
- Remote locations

Farm Visits

Agricultural work is particularly hazardous and is the cause of many injuries and deaths each year. Be aware of all potentially hazardous situations.

- Take extra care when in workshops and working with tractors, implements, animals and farm chemicals.
- Training and induction are important
- People are not permitted to enter the farm and operate machinery and equipment that is on site; climb on buildings and structures; go near unsafe areas such as rubbish tips or holes in the ground; or go in close proximity to large animals; without the express permission of the Farm Manager or Farm Director.
- All waste oils and farm chemicals are to be stored and disposed of correctly to avoid environmental contamination and safety hazards.
- Appropriate protective clothing will be worn when handling, mixing and applying all farm chemicals.
- Protective footwear is essential.
- Appropriate personal protective equipment should be worn at all times ie hearing and sun protection
- Tractor operators are required to be trained and competent.
- Ensure equipment is in a safe working condition and that all safety guards are in place before operating machinery.

Appendix

OCC05 CHARLES STURT UNIVERSITY - ADMINISTRATION MANUAL

Policy for the use of human biological specimens in undergraduate & research laboratories

As approved by the Board of Governors on 11 April 1997 (BG97/58), and amended on 26 November 2002 (CNL02/173): (links and references have been updated 05/102011 for this appendix)

Statutory Requirements

Occupational Health and Safety Act 2000 Sections 8 (1) and (2)

The following standards will be followed to meet the University's obligations under the Occupational Health and Safety Act:

- Australian Standard AS 2243.1 – 2005 Safety in Laboratories Part 1: Planning and Operational Aspects;
- Australian Standard AS 2243.3 – 2010 Safety in Laboratories Part 3: Microbiological Aspects and Containment Facilities.

Preamble

In some laboratory practical classes, exercises using blood have been devised where the blood samples used are obtained from volunteer staff, students and patients by venepuncture or a finger prick. Other body fluids or tissue (eg urine, saliva and cheek cells) may also be utilised.

Some research projects also require the collection and handling of blood and other materials of human origin.

Policy

All samples used by students will be either from screened donors (i.e. showing negative serology/virology for syphilis, Hepatitis B and C, and HIV) or provided by students who will be testing their own body samples themselves.

Teaching and research activities that cannot meet their objectives through the use of the types of sample outlined above *must* obtain approval for an exemption to this policy ¹. The application for an exemption should be made in writing, be addressed to the University Biosafety Committee and should include a detailed risk management protocol. **Samples from unscreened donors (with the exception of the samples provided by the students for their self-testing) shall be used unless approval for that specific activity has been provided, in writing, by the Biosafety Committee.**

All Human Biological specimens should be regarded as infectious at all times.

[¹ See Protocol for Granting an Exemption to the Requirements of the Human Biological Specimens Policy at Appendix 10, Biosafety Manual]

Procedures

Standard (Universal) precautions should be adhered to at all times when handling material of human origin (blood, body fluids and tissue). (See *Infection Control in Health Care Settings: Guidelines for the Prevention of Transmission of Infectious Diseases*, National Health and Medical Research Council).

Procedures should be adopted that minimise the chance of accident by needles and other sharp implements which cause injury.

Avoid contact with material of human origin and minimise risk by wearing disposable gloves, protective gowns and protective eye wear if appropriate.

At the conclusion of all procedures, wash down bench tops and other surfaces with an appropriate disinfectant, for example, a strong solution of sodium hypochlorite (approximately 0.5% available chlorine), followed by 70% (w/w) alcohol (80% v/v), discard gloves into contaminated waste bag, place protective clothing in laundry bag and wash hands thoroughly with soap and water.

In the event of an accident involving Human Biological Specimens, report it immediately to your supervisor or staff member in charge of the area or class where the accident occurs, and ensure that your supervisor follows up this action within 24 hours with the submission of a Biological Accident/Incident Report, using [form BSC1](#), to the Biosafety Committee.

Any accident involving injury or contamination to staff, students or visitors shall *also* be reported to the Human Resources Office using the CSU [Accident/Incident Report Form](#) (**NB:** This form is a separate one to BSC 1), available at <http://www.csu.edu.au/division/hr/forms>. (See also Procedures for Dealing With Biological Accidents/Incidents in the University Biosafety Manual).

Sharps Protocol

1. Needles and syringes are to be discarded only into approved containers.
2. Never attempt to replace the cap on a needle after use as this may lead to a 'finger-stick' injury.

Injuries

For injuries involving Human Biological Specimens, proceed to the Campus Medical Centre, or nearest hospital emergency department. This should be done without delay so the incident can be assessed and treatment offered within 24 hours if warranted.

As indicated at *Procedures* above, ensure that you submit a *Biological Accident/Incident Report (form BSC 1)* to the Biosafety Committee within this same time period. Detailed guidelines are provided within the *Procedures for Dealing With Biological Accidents/Incidents* in the Biosafety Manual).

Spills

1. If any body fluid is spilled, it should be cleaned up immediately with, for example, a strong solution of sodium hypochlorite (approximately 0.5% available chlorine), followed by 70% (w/w) alcohol (80% v/v).
2. Laboratory coats contaminated with body fluid must be decontaminated; for example, by placing in a chlorine bath for 30 minutes, prior to normal washing.
3. Material used to clean up the spill must be appropriately decontaminated prior to disposal; for example, by autoclaving or chemical sterilisation (NOTE: *Do not* autoclave materials soaked with hypochlorite solution due to the risk of toxic gas being produced).

Hazard and accident/incident reporting & investigation procedure

HAZARD observed with potential to cause harm or property or environmental damage



Person observing hazard completes **Hazard Report Form** and gives it to supervisor to complete follow up action

INCIDENT occurs which either has or has not resulted in injury or illness to a person (staff or student or visitor) or environmental harm)



Person who sustained injury or illness completes **Accident/Incident Report Form** if possible. Alternatively the First Aid Officer or witness can do this and must fax it to HR within 24 hours.

A SIGNIFICANT incident or illness is one that is WorkCover reportable ie. results in a person having 7 or more continuous days absent or is on selective duties for this period or longer



Record on **Accident/Incident Report Form** and report to WorkCover on their investigation report form
Incident should be investigated by the supervisor and OHS representative as requested by HR.

A SERIOUS incident is one that has non disturbance provisions such as: major gas leak, fire, major spill, life threatening occurrence



Complete **Accident/Incident Report Form**. A Manager or representative of Manager OHS needs to cordon off area concerned until WorkCover has been notified by HR, and an onsite investigation completed. HR coordinates the incident reporting process to WorkCover within 7 days

WorkCover Inspector may choose to so an onsite investigation of any reported accidents if they consider it has potential for causing injury



WorkCover will usually notify the supervisor or HR if they are going to do an on site incident investigation

The above is based on guidelines for [Reporting Accident/Incident Guidelines](#).
An Accident/ Incident form is included in the appendix of this guide.



Registration No

...../...../.....

IMPORTANT – PLEASE READ ALL ACCIDENTS/ INCIDENTS MUST BE REPORTED

- Please PRINT or TYPE all details. If there is insufficient space please attach additional information, sketches etc.
- This report must be completed, **signed** and faxed to + 61 2 633 **84830** within **24 hours** of an accident/ incident or near miss occurring or be scanned and emailed to ohs@csu.edu.au.
- Forward the **original** to Charles Sturt University, Division of Human Resources, Phillips Building, Panorama Avenue, Bathurst NSW 2795 Australia.
- **STAFF ONLY** - If lodging a **Workers Compensation Claim** you must contact the Human Resources Service Centre, nominate a treating doctor and obtain a WorkCover Medical Certificate.
- **STUDENTS ONLY** - If lodging an insurance claim, information and forms are available from Student Support Officers.
- This report is **CONFIDENTIAL** and information provided is protected by the Privacy and Personal Information Protection Act 1998 (NSW), and the Health Records and Information Privacy Act 2002 (NSW) however you should be aware that Human Resources will distribute a copy of the report to relevant parties for the purpose of investigation and insurance. Please contact Human Resources office should you require further information.

Details of injured person are to be completed by person/ first aid officer/ witness

Campus/Site: First Name: Last Name:

Residential Address:

Is person: Staff Student Visitor Gender: Male Female

Staff/ Student No: Date of Birth: Position:

School/ Section: Telephone: Home Work

Supervisor: Employment Status: Full Time Part Time Casual

Date Occurred: Time Occurred:am/pm Location:

Nature of Accident/ Incident or Injury (eg laceration, sprain, near miss, vehicle accident):

Area of Damage/ Part of Body Injured (eg none, right leg, crumpled car bumper):

State exactly how accident/ incident occurred:

Returned to Work/Study	
Yes	No

First Aid Only	
Yes	No

Attended Doctor	
Yes	No

Attended Hospital	
Yes	No

If No - Date Stopped	

Name of Officer	

Name of Doctor	

Name of Hospital	

Details of Treatment (eg ice applied):
(Should the illness/ injury worsen please forward an updated Accident/ Incident Report Form)

Witness/s: Name

Address

Phone No.....

Details of Hazards:

Have you submitted a			
BEIMS Request		Hazard Report	
Yes	No	Yes	No

Does this incident involve a					
Radiation Hazard		Biological Hazard		Chemical Hazard	
Yes	No	Yes	No	Yes	No

If so attach details from relevant section of applicable Safety Manual

Person Completing Report (print name)

Signature

Date

First Aid Kits

OCCUPATIONAL HEALTH & SAFETY REGULATION 2001

COMPULSORY REQUIREMENTS FOR FIRST AID KITS FOR 100 PEOPLE OR LESS

DESCRIPTION OF APPLIANCE OR REQUISITE	NUMBER REQ'D IN KIT
Adhesive plastic dressing strips, sterile, packets of 50	1
Adhesive dressing tape, 2.5 cm x 5 cm	1
Bags, plastic, for amputated parts:	
Small	1
Medium	1
Large	1
Dressings, non-adherent, sterile, 7.5 cm x7.5 cm	2
Eye pads, sterile	2
Gauze bandages:	
5 cm	1
10 cm	1
Gloves, disposable, single	4
Rescue blanket, silver space	1
Safety pins, packets	1
Scissors, blunt/short nosed, minimum length 12.5 cm	1
Splinter forceps, stainless steel	1
Sterile eyewash solution, 10 ml single use ampules or sachets	6
Swabs, prepacked, antiseptic, packs of 10	1
Triangular bandages, minimum 90 cm	4
Wound dressings, sterile, non-medicated, large	3
First-aid pamphlet	1
(as issued by the St Johns Ambulance or the Australian Red Cross Society or as approved by WorkCover)	