Occupational Health and Safety in the Laboratory (Undergraduate Students)

Introduction and scope of the Guidelines

These guidelines have been written for all laboratory practical classes at the University of Queensland that involve practices, procedures or substances which could affect the health and safety of students or staff involved in the classes. It applies to all **undergraduate** students, however please NOTE: not all parts of this guide apply to every practical class.

The University of Queensland recognises that students are considered to be 'in training', and consequently, safe working practices must be adopted and taken seriously when undertaking laboratory activities.

Who should read and use these guidelines

- Course co-ordinators
- Practical class co-ordinators and tutors
- Technical staff associated with practical classes
- Undergraduate students

The **Heads of Schools/Centres/Institutes** are responsible for implementing and maintaining occupational health and safety standards and practices in laboratories and teaching facilities under their control. The following should be ensured:

- Buildings and equipment provided for practical classes are safe and suitable for the types of work carried out;
- Financial provisions are made for health and safety equipment and materials;
- Practical classes are run by persons who are competent in occupational health and safety matters (Note: local information sessions for tutors are encouraged);
- Staff and students receive the appropriate information, instruction and training necessary for them to perform their work safely;
- Rules and procedures are prepared and enforced for students undertaking practical classes;
- Emergency equipment is provided for practical classes and that staff and students are aware of emergency and evacuation procedures;

Staff (in charge of, or teaching in practical classes) are responsible for providing a healthy and safe environment for students. The following should be ensured:

- Health, safety and environmental aspects of the practical are considered;
- Students receive the appropriate information and supervision necessary for them to carry out their studies safely;
- Students are warned about particular hazards, and how to avoid, eliminate or minimise their exposure to them;
- Proper attitudes towards health and safety are practiced and transferred to the students;
- Students under their control are using safety equipment, where considered necessary;

- Accidents and Incidents are recorded on the UQ Workplace Injury, Illness and Incident database

Students also have responsibilities under the Work Health and Safety Act (2011). Students are required to:

- Avoid, eliminate or minimise hazards of which they are aware;
- Comply with all occupational health and safety instructions;
- Make proper use of all safety devices and Personal Protective Equipment (PPE);
- Not wilfully place at risk the health and safety of themselves or any other person;
- Seek information or advice where necessary, or when in doubt, before carrying out new or unfamiliar work;
- Wear protective clothing and footwear;
- Be familiar with emergency and evacuation procedures;
- Report and record all accidents and near miss incidents on the Injury, Illness and Incident Reporting System: http://www.risk.admin.uq.edu.au/uq-injury/forms/default_content.asp

The laboratory

A laboratory can be a place of specialised research, clinical or diagnostic evaluation, teaching and/or learning. Laboratories are commonly used in many scientific disciplines across the University ranging from health sciences to biological and physical sciences. The term laboratory may also equate with a workshop in some engineering areas, as well as animal houses.

Introducing health and safety to students

It is essential that health and safety principles and concepts are integrated at all levels of organisation of practical classes.

The lecturer or tutor must provide the students with a general health and safety induction at the commencement of each semester. This induction should ensure the following information is conveyed to the students:

- The University has an Occupational Health and Safety Policy and how it applies to them;
- The Health and Safety responsibilities which apply to students in practical classes;
- Emergency procedures for the laboratory;
- The requirement for the reporting of accidents and 'near miss' incidents to the lecturer and/or tutor. Students should also be advised to report any medical condition, allergy, physical or mental disability or personal circumstance that could put them at risk during the class;
- Laboratory policies and procedures relevant to the course of practical classes;
- The requirement for **mandatory** wearing of personal protective equipment (PPE) which has been considered necessary by the lecturer. Students must be advised that failure to bring required PPE (*e.g.* lab coat, closed footwear, safety glasses) with them to the class could result in them being refused participation in that practical class.

Lecturers should also ensure that specific issues relating to health and safety in specific practical classes are brought to the attention of students. It is recommended that a brief section on health and safety be included in all manuals for undergraduate practical classes.

Tutors and demonstrators also should be reinforcing safe work practices with the students since they have most of the practical contact with the students.

The lecturer must also ensure that the student has understood the information which has been explained to them by collecting the signed 'Student Declaration Form for Practical Class Work' or using an online form to collect these declarations.

Laboratory Safety Rules

General rules – Building

- In an emergency and during practice evacuations, move quickly and carefully from the laboratory to the external stairwell or nearest emergency exit. Proceed to the designated assembly area (tutor will advise) and wait there until permission is given to re-enter the building. Never run in the laboratory or along corridors.
- Be aware of the position of exits from all work areas and from all levels of the building.
- Smoking is prohibited in all buildings at the University of Queensland.
- Food and drink (including drinking from water bottles) must not be consumed in laboratories

General rules -Laboratory

- Students are not permitted to enter any preparatory laboratory without the permission of the laboratory supervisor or tutor.
- Unauthorised experimentation in the laboratories is strictly forbidden. Undergraduates wishing to use the laboratory out of timetabled periods must obtain their lecturer's or tutor's written permission.
- All students must be aware of the conditions required for the safe handling of substances and specimens being handled. All specimens should be treated as if infectious. If in any doubt, seek guidance from the laboratory tutor.
- Be aware of the safety facilities of the laboratory, *i.e.* location of safety showers, eyewash stations, fire extinguishers and emergency exits.
- Working spaces are to be kept clean. Broken glass, sharps, and laboratory waste must be placed in the marked bins in the laboratory. No waste is to be left or placed in the sinks, and under no circumstance must waste be placed down the sink, unless authorised to do so by the tutor.
- Disposable gloves should be placed into yellow bins (Clinical waste bin) which are specifically marked for such.
- All spillages must be cleaned up immediately after they occur. No reagent, solution or apparatus is to be removed from the laboratory without approval from the tutor.
- Correct and safe use of Bunsen burners will be demonstrated by the tutor. Be aware of burning Bunsen burner by noting a hollow burning sound and/or the absence of a blue cone of unburnt gas.
- Pipetting by mouth is prohibited.
- Handle dissecting equipment with care, store blades covered, secure blades inside the dissecting kit and always remove blade from handle using scalpel blade remover.
- Defective equipment or broken glassware must be reported to the tutor.
- Radioactive sources (*e.g.* laser, UV radioactive substance or arc lamp) must only be used under the direction and supervision of the tutor or supervisor.
- Bags, ports and sacks are to be placed in designated areas. Do not block passage ways or fire exits.
- Sitting on laboratory benches is prohibited. Never run in the laboratory or along corridors.
- Exercise care when opening and closing doors on entering and leaving the laboratory.
- Always wash hands thoroughly before leaving the laboratory.

General rules – Laboratory dress code

- All students **must** wear covered footwear during practical classes. Thongs, open weave shoes, sandals *etc.* are not appropriate footwear. Students will not be permitted to participate in practical classes unless wearing suitable footwear.
- A clean laboratory coat **must** be worn at all times in most laboratories. Examples of when this

may not apply include completely dry laboratories (*e.g.* Physics) or where the tutor has deemed it inadvisable because of other safety considerations. (For example, during exercise in physiology practicals, students may run the risk of catching their lab coats in the bike). Variations from wearing labcoats must be approved by the School Work Health and Safety Coordinator. The laboratory coat should be removed when leaving the laboratory (be aware that contaminated laboratory coats are potentially infectious). Disposable coats may also be an option.

- Where hearing protection or gloves are supplied during the practical class, they must be worn.
- In all laboratories and designated work areas where there is a risk of eye injury (*e.g.* projectile hitting the eye), protective eyewear must be worn at all times during the course of the laboratory work.
- Long hair should be tied back to avoid injury.

For the majority of practical classes, the supply of a lab coat, eyewear and closed footwear will be the responsibility of the student, but other items of protective clothing (*e.g.* hearing protection and gloves) which may be required for the course may be supplied by the School / Centre / Section.

Immunisation

- All students should be up-to-date for tetanus immunisation. If unsure, visit the University Health Service (Telephone 33656210).
- Students who come in contact with human blood or blood products are strongly advised to have a course of Hepatitis B immunisation (some areas may mandate this).
- Students who are in contact with sheep, goats, cattle or feral animals should have Q Fever vaccination. This includes vaccination, skin test and serology.
- Students who are in contact with bats should have a course of rabies immunisation.

These services and further advice on immunisation are all available through the University Health Service.

Pregnancy

The University has a responsibility to advise all students of any health and safety risks relevant to the practical class, where they cannot be eliminated or controlled out. Students who are pregnant may be at higher risk from exposure to certain chemicals and hazards.

At the start of semester, the person running the practical class should advise students to contact the course co-ordinator if they are pregnant or trying to become pregnant. This ensures that suitable arrangements or modifications can be made to minimise the student's exposure, if at risk.

The following procedures should be in place in practical classes which use chemicals:

- A risk assessment should be conducted by the tutor / lecturer / course coordinator for all chemicals or biological material which are to be used during practical classes.
- Chemicals which are known to have reproductive, teratogenic or carcinogenic effects should not be used in undergraduate practical classes.
- Should chemicals having effects of a reproductive, teratogenic or carcinogenic nature be used during practical classes, because there is no safer alternative, control measures to reduce exposures to acceptable levels should be employed. Further to this, all students must be advised at the start of the semester and at the start of the practical class that these chemicals are known to have these types of effects. Consideration to exclude the student from that class should be made carefully and should involve discussion with the Occupational Hygiene Adviser from the OH&S Division. Where considered necessary, Dr Tony Arklay from the University Health Service will

be consulted.
- Any student who knows they are pregnant or are trying to fall pregnant should advise the person running the practical class as soon as they are aware so that additional precautions can be exercised during this period.

First Aid

- Report all injuries and illnesses to the tutor. Trained first aid officers will administer first aid.
- Eye injuries, whether caused by chemicals or mechanical injury or a splash with a biological material are always serious. The treatment requires immediate and prolonged flushing with water (20 minutes minimum) at the eyewash station. Medical advice should be obtained for an eye injury. Safety Data Sheet (SDS) should accompany student if necessary to seek medical treatment.
- In the event of chemical or biological spills on skin, thoroughly wash the affected area with copious quantities of water. Notify tutor immediately. Consult SDS to determine appropriate first aid. SDS should accompany student if necessary to seek medical treatment.
- Sharps injuries – Notify tutor immediately. Wash the wound and encourage bleeding. Health Services should be visited.
- Animal bites – Notify tutor immediately. Wound must be rinsed well. Tetanus immunisation should be up to date.
- If you are feeling unwell or dizzy when participating in an experiment, stop immediately, sit down and notify tutor.
- All accidents must be reported to the tutor, including cuts and bruises and recorded on the Workplace Injury, Illness and Incident Database. Incidents not resulting in injury, such as spills, electrical faults, damage to equipment *etc.* must still be reported to the tutor.

Student Safety Declaration Form for Practical Class Work

This form must be completed by the Student and given to the Tutor, Lecturer or Course Coordinator during the first practical class. (Some Schools require online submission of this form *e.g.* SCMB). No experimental work should start until this form has been completed.

Name: (Please Print) _____

Student Number: _____

Course Code: _____

	Yes	No
I have read and I understand the Occupational Health and Safety in the Laboratory guidelines (Undergraduate Student Edition).		
I am aware of my Workplace Health and Safety responsibilities.		
I understand that personal protective equipment (PPE) may be required for this course and I agree to wear it as directed by the tutor.		
I understand that if I am not wearing appropriate PPE, I can be excluded from the laboratory for that class.		
I agree to follow all safety procedures explained to me by the tutor.		
I understand that I must not eat food or drink in the laboratory.		
I understand that inappropriate conduct can result in the denial of further laboratory access.		
I understand that all accidents, including 'near miss' incidents need to be reported to the lecturer or tutor immediately.		
I understand that all faulty or broken equipment needs to be brought to the attention of my tutor immediately.		
I understand the procedures outlined in this guideline regarding emergency evacuation. I agree to follow the instructions of my tutor, UQ Security and other competent persons during emergencies. I agree to familiarise myself with the local emergency arrangements of the laboratory, including the location of the eye wash and safety shower.		
I understand the procedures outlined in this guideline regarding pregnancy.		
I agree to advise the course coordinator of any known allergies / sensitivities to chemicals or other substances relevant to my undergraduate coursework.		
I agree to advise the course coordinator of any physical or mental disability, or personal circumstance that may negatively impact safety in the laboratory.		

Student Signature: ……..……...

Date: ……..