Laboratory Conduct Code

1  PURPOSE OF CODE

This Code provides clear guidelines for all aspects of laboratory conduct. This practical advice should be followed unless an equally effective, alternative approach and safe laboratory practice can be demonstrated complying as a minimum with statutory obligations and relevant Australian / New Zealand Standards, particularly AS/NZS 2243 Safety in Laboratories, Parts 1 - 10. Advice should be sought from UWA Safety and Health before any alternative approach is used.

2  LABORATORY

Laboratories are used in many University disciplines. They can be defined as places of specialised research, teaching and or learning in which hazards to human health can arise from inappropriate situations and or behaviours.

Each laboratory should have either on or adjacent to its entry door a prominent placard containing at least the following information:-

- Area Supervisor: Name  Location  Phone  A/Hours
- Deputy Supervisor: Name  Location  Phone  A/Hours
- Safety Hazards in this Area
- Precautionary Measures Required
- Access only for authorised persons

Offices, write up and study areas shall be separated from areas where hazardous materials are used or potentially harmful processes undertaken to ensure that reading and writing materials do not become contaminated. These areas should not form part of laboratory benches.

3  RESPONSIBILITIES (see also Section 16 of this Code)

The principal objective of the WA Occupational Safety and Health Act 1984 is to promote and secure the safety and health of persons in the workplace. The employer (the University) has a duty of care to provide a safe work place. Employees – and this includes students, visitors and contractors - all have individual responsibilities to take reasonable care of their safety and health and that of others, to follow all safety and health policies and procedures and .

4  PLANNING

Take time to plan your project – from beginning to end – then discuss with your supervisor and staff who will be able to help you. Check your details because:-

- Some processes or equipment will have a lead time before they are operational.
• Equipment or processes may need to be booked in advance.
• Chemical and biological agents (particularly those from overseas) may have a long delivery time.
• Risk assessments need to be completed and approved. All required controls will have been identified and arrangements commenced for their implementation.

Planning must also include handling, storage and disposal of wastes.

5 LABORATORY SAFETY MANUAL

Each laboratory (or suite of combined laboratories) should have its own Laboratory Safety Manual or set of manuals. Contents should include:-
• Standard Operating Procedures for commonly shared equipment;
• Standard Risk Assessments for commonly performed tasks;
• Register of Equipment and Chemical and Biological Agents within the laboratory;
• Material Safety Data Sheets for Chemical and Biological agents within the laboratory;
• Working Rules appropriate to the particular laboratory including;
  • Statutory Obligations such as for OGTR /radioactive/dangerous goods/ prescribed Chemical and Biological Agents/AQIS etc compliance;
  • Emergency Procedures for fire/smoke, personal injuries/spills;
  • Transport Requirements for materials being brought into or taken out of the laboratory; and
  • Waste Management and Disposal procedures.

Each person within the laboratory needs to sign (with date) that they have read, understood and will abide by this manual before being permitted to commence work. This should also be countersigned (and dated) by the Laboratory Manager or Supervisor.

6 RISK ASSESSMENTS

Standard Risk Assessments for common procedures will be included in the Laboratory Safety Manual.

Risk assessments are not necessary when ‘a risk is well known and the solution is obvious’ for example: if you see water/coffee spilled on the floor or stairwell – clean it up! In other words, if a way to deal with a hazard is obvious, don’t wait for a formal risk assessment before you make the workplace safe.

Risk assessments determine the level of hazard or risk associated with any procedure and assess whether current control methods are adequate or need to be improved. They should be performed when:
• It is the first time that a procedure is to be performed.
• There is only limited knowledge about a hazard or the risk or how the risk may result in injury or illness.
• There is uncertainty about whether all of the things that can go wrong have been found.
• The situation involves a number of different hazards that are part of the same work process or piece of plant and there is a lack of understanding about how hazards may impact on each other to produce new or greater risks.
• There is to be a significant change of procedure/practice from the original assessment.

In research and educational environments documented risk assessments should be completed for the following:-

• **Laboratory projects** – work is not to commence until a written risk assessment has been completed by you and your supervisor. It is to be signed off and recorded.
• **Each hazardous chemical to be used** – refer to Section 10 of this Code.
• **Use of specific equipment** – general risk assessments for use of equipment and *standard operating procedures* (or safe work methods) must be available in the *Laboratory Safety Manual* for each laboratory – make sure you read, understand and follow them.

### 7 GENERAL SAFETY RULES

7.1 Children are not permitted in laboratories.

7.2 Be aware of emergency procedures, location of emergency showers/eyewashes and emergency evacuation assembly locations.

7.3 Appropriate personal protective clothing must be worn at all times in laboratories and comply with instructions to students. (Refer also to Section 8 of this Code.)

7.4 Closed-in footwear at all times. Bare feet, thongs and sandals are prohibited.

7.5 Fasten loose clothing and tie back long hair. When using machinery, remove jewellery and rings. The possibility exists for such items to be caught in moving parts.

7.6 It is prohibited to eat, drink and apply cosmetics in laboratories.

7.7 I-pods and similar devices which could cause distraction or become contaminated during laboratory operations should be left outside the laboratory. Mobile phones should be used only for emergency contact while undertaking laboratory procedures.
7.8 Do not store food and/or drink in laboratory refrigerators or laboratory storage units. The exception is if the food and drink are specifically for research or teaching, then these items must be clearly labelled as research or teaching items.

7.9 Do not run or engage in reckless behaviour in or near laboratories.

7.10 Cover all open wounds when handling chemicals, animals and other biological material. Band Aids are available in the First Aid boxes.

7.11 Wash hands and remove laboratory coats after completion of experimental work and before leaving the laboratory.

7.12 Use disinfectants after handling suspected infectious materials.

7.13 Do not pipette by mouth. Use mechanical pipetting devices instead.

7.14 Avoid lifting heavy objects. Use lifting devices and trolleys where appropriate. Where lifting is unavoidable, seek assistance if required (share the load).

7.15 Do not use any machines, equipment or laboratory apparatus without prior instruction/training by the supervisor or technical staff on safe work procedures and practices. Whilst using any equipment you must adhere to the standard operating procedure.

7.16 Observe safety signs at all times

8 ADDITIONAL PERSONAL PROTECTION

8.1 Approved safety spectacles, goggles or safety shields must be worn in all areas where tools or substances such as chemicals, liquids, UV light, lasers or radiation may cause eye injury.

8.2 Appropriate protective clothing (for example gowns, overalls, closed laboratory coats, flame resistant clothing, etc) shall be worn where required. Specific protective clothing/gloves will be at the discretion of the area but can be required by legislative/standards and or risk assessment. Laboratory coats should not be worn outside the laboratory (legal/contamination control requirements).

8.3 Hearing protection must be worn if noise can damage or impair hearing (e.g. when using ultrasonic cleaning apparatus).

8.4 A risk assessment is to be conducted to assess work practices regarding the frequency and likelihood of injury to the feet, i.e. moving furniture, gas cylinders, and heavy equipment. If there is a medium to high risk then safety footwear is recommended.
8.5 Ensure the correct gloves are used for chemicals. For assistance refer to Ansell: http://www.ansellasiapacific.com/specware/search.asp

9 HOUSEKEEPING

9.1 Keep floors tidy and dry. Keep benches clean and free from chemicals and apparatus that are not being used.

9.2 Clean working area and equipment thoroughly after use.

9.3 Keep aisles and exits free from obstructions.

9.4 Ensure clear access to emergency equipment (fire extinguishers, first aid kits, chemical spill kits, emergency shower and eye washes).

9.5 When leaving the laboratory, turn off all equipment in use (if appropriate), extinguish flames etc.

9.6 Keep the interior of fume cupboards and nearby areas clean and clear.

9.7 For information on gas cylinders refer to the relevant Material Safety Data Sheets (MSDS) and the Chemical Safety Procedures.

9.8 All contractors working in your area must be inducted into any hazards and controls which may exist in your area, i.e. flammable liquids and biological materials. It may be necessary to supervise contractors for some procedures.

9.9 Cleaners will normally only sweep or mop floors and empty general waste bins of laboratories. They should not be exposed to hazards.

10 CHEMICALS AND HAZARDOUS SUBSTANCES

For more information please refer to the University’s and Faculty’s Chemical Safety Procedures.

10.1 Clearly label all containers in use within the laboratory according to the National Code of Practice for the labelling of Workplace Substances [NOHSC:2012] (refer to the Chemical Safety Procedures).

10.2 Always use safety carriers for transporting glass or plastic containers with a capacity of 2 litres or greater.

10.3 Obtain the relevant Material Safety Data Sheets (MSDS) and conduct a risk assessment before commencing a new process involving chemicals. Refer to Section 5 of this Code.
10.4 Regard all substances as hazardous unless there is definite information to the contrary.

10.5 Carry out work in fume cupboards according to the MSDS.

10.6 Keep fume cupboard sashes closed whenever practicable.

10.7 Do not place objects near fume cupboard baffles so that airflow is impeded.

10.8 The use of recirculating fume cabinets is not encouraged; please contact UWA Safety and Health for advice on these units.

10.9 Do not allow flammable materials to accumulate in the laboratory.

10.10 Hazardous substances must be disposed of in accordance with University Policy, Statutory and MSDS requirements. Use the correct containers provided to dispose of glass, sharps, metal, paper, infectious, OGTR, AQIS waste etc. (Regularly check disposals against licence requirements.)

10.11 Keep only the minimal required quantities of chemicals in the laboratory work area.

10.12 Segregate and store all Dangerous Goods according to class.

10.13 Do not store flammables (Dangerous Goods class 3) in a domestic refrigerator (cooling and storage of flammables must only be done in a spark proof refrigerator or freezer).

10.14 For work with carcinogens, toxins and embryotoxins, cryogenics, herbicides/pesticides, peroxidizables, organic and shock sensitive, cyanides, acid fluoride chemicals and gas cylinders refer to MSDS and the Chemical Safety Procedures.

10.15 Chemical waste should not be disposed of via sinks, drains or stormwater channels unless using neutralisation processes approved by the WA Water Corporation. Areas must provide suitable waste disposal containers and are responsible for their removal by an approved waste disposal contractor (refer to the Chemical Safety Procedures).

11 ELECTRICAL EQUIPMENT

11.1 It is prohibited to use electric open bar radiators, electric fan heaters and kerosene heaters.
11.2 Switch off electrical appliances which do not need to be left on when equipment is not in use. Note that equipment such as mass spectrometers need to be left on.

11.3 Display a "LEAVE ON" sign on intermittently used equipment when it is required to be left on for an extended period. When it needs to be left running overnight it should be labelled with name and telephone number of the after-hours person to be contacted.

11.4 Unless otherwise fitted, use Residual Current Devices (RCDs) for all hand held electrical appliances and ensure that all hand held electrical equipment is tested and tagged annually.

11.5 Do not use double adaptors or piggyback plugs. Use power boards with overload protection as required.

12 FIRE PREVENTION

12.1 No smoking in laboratories or in any University buildings.

12.2 Open flames should not be left unattended and no open flames should be used near flammable solvents.

12.3 Keep fire escape routes clear at all times.

12.4 Before starting work, all staff and students are to become familiar with the fire procedures and location and use of fire-fighting equipment within the laboratory.

13 EMERGENCY / FIRST AID

13.1 It is the responsibility of all supervisors, lecturers and demonstrators to ensure that persons working in a laboratory know the location of:

   a) The nearest fire extinguishers/ fire blankets
   b) Fire / emergency escape routes
   c) First aid box
   d) Emergency shower/eye wash facilities
   e) Isolation devices for gas, water and power (where fitted),
   f) Emergency spill containment equipment and procedures
   g) Emergency personal protective equipment
   h) Any special substances that require antidotes

13.2 Wash skin immediately with plenty of water if contaminated with acids and alkalis (if required seek medical attention).

13.3 Eyes splashed with any chemical must be washed with water for 15 mins and medical advice obtained immediately.
13.4 All breakages and spills must be reported to the supervisor and dealt with immediately. Spills should be cleaned up and bins provided for broken glass and spill clean up materials etc.

13.5 Ensure all incidents and injuries are reported. Injuries should be recorded in the First Aid log or reported on a UWA Confidential Incident/Injury report form depending upon the severity of the injury.

14 AFTER-HOURS WORKING IN LABORATORIES

14.1 Core work hours are 8:00 am to 5:00 pm Monday to Friday apart from University Holidays. Work performed after these times and on weekends or public holidays, is regarded as after-hours.

14.2 There is an increased risk in laboratory work after-hours and working alone in a building or far removed from other people. All areas should have an after-hours procedure for any hazardous and or isolated work, including means of communication and security.

14.3 Persons wishing to work outside normal hours may need to provide a Work Plan that clearly defines the proposed task and limitations on that task outside normal working hours. They may need to fill in a form on arrival and departure as well as advising Security on 6488 3020 or the appropriate number for laboratories not on the main campus.

14.4 Some work such as the following activities is normally too hazardous to be undertaken alone or after-hours: hydrofluoric acid; explosive and potentially explosive substances; disposal of hazardous substances; naked flames associated with flammable solvents; low temperature environments (cool rooms); high powered fast moving machinery or equipment; deep water; heights or confined spaces; and significant quantities of molten metals.

14.5 Work by undergraduate students can only be performed when directly supervised by a staff member or approved nominee.

15 RELATED INFORMATION

<table>
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<tr>
<th>Related Information</th>
<th>Link</th>
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<tbody>
<tr>
<td>Animals</td>
<td><a href="http://www.safety.uwa.edu.au/policies/animal_handling">http://www.safety.uwa.edu.au/policies/animal_handling</a></td>
</tr>
<tr>
<td>AS/NZS 2243</td>
<td>Australian New Zealand Standards 2243 Safety in Laboratories, Parts 1 - 10</td>
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<tr>
<td>Biological</td>
<td><a href="http://www.safety.uwa.edu.au/biological_safety">http://www.safety.uwa.edu.au/biological_safety</a></td>
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<td>Field Work</td>
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<tr>
<td>Incident Injury</td>
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16 RESPONSIBILITIES

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<tr>
<td>Executive Deans</td>
<td>To ensure that the University meets all of its obligations in the area of OSH management.</td>
</tr>
<tr>
<td>Head of School/Section</td>
<td>Provide adequate resources and support for effective OSH management in their area of responsibility and monitor its effectiveness in preventing injury and ill health.</td>
</tr>
<tr>
<td>Safety and Health</td>
<td>It is the responsibility of each Faculty / School to implement and coordinate training in laboratory conduct across all campuses and provide advice to any area when requested. UWA Safety and Health is responsible for formulating policy and guidelines to assist areas to achieve compliance.</td>
</tr>
<tr>
<td>Supervising Lecturer, Demonstrator or delegate</td>
<td>Supervisors of staff or students working in a laboratory are responsible for ensuring compliance with these guidelines. They must ensure that all personnel are fully instructed and trained in hazard management principles, risk assessments, MSDS, control measures and any other measure to reduce exposure. They are responsible for ensuring correct reporting of any hazards, incidents and injuries which they are unable to attend to themselves.</td>
</tr>
<tr>
<td>Staff, students, visitors and contractors</td>
<td>All staff, students, visitors and contractors must comply with these Guidelines and are to follow all instructions and directions relating to laboratory conduct.</td>
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17 DISCIPLINARY ACTION

Repeted or serious breaches of these guidelines may result in disciplinary action which could include exclusion from the laboratory.

October 2009