Health and Safety Risk Assessment

Activity / Task / Location: Biol ExpFest / Labs / SB106 & SB107 CAL, SL1.121 OUR	Reviewed / Approved By: Signature and Date: 28/04/2025
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Risk Matrix

N.B. For more details regarding use of this matrix / definitions refer to final page of this document

Consequence

Likelihood

	Rare	Unlikely	Possible	Likely	Almost Certain
Severe *Eg. Potential Fatality or Injury or Illness with permanent disability*	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME
Major *Eg. Potential Lost Time Injury (but non-permanent disability)*	LOW	MEDIUM	MEDIUM	HIGH	EXTREME
Moderate *Eg. Potential Medical Treatment injury or illness (but no lost time)*	LOW	LOW	MEDIUM	MEDIUM	HIGH
Minor *Eg. Potential First Aid injury*	LOW	LOW	LOW	MEDIUM	MEDIUM
Minimal *Eg. Hazard or near miss requiring reporting and follow up action*	LOW	LOW	LOW	LOW	LOW

Actions required based on Risk Assessment

Extreme	An “extreme” risk requires immediate assessment and senior staff consideration is required; a detailed mitigation plan must be developed, and consideration should be given to ceasing the activity unless the risk can be reduced to a level of high or less; regular monitoring and reported on to the relevant management/steering committee; Target resolution should be within 1 month.
High	A “high” risk may also require immediate assessment and senior staff consideration; a mitigation plan must be developed; regular monitoring and reported on to the relevant management/steering committee. Target resolution (ideally reduction to medium or low level of risk) should be within 3 months.
Medium	A mitigation plan must be developed; existing controls need to be reviewed. Target resolution (ideally reduction to low level of risk) should be within 1 year.
Low	Risk is tolerable; manage by well established, routine processes/procedures and be mindful of changes to nature of risks.

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Hazard Identification and initial Risk Rating			Control measures and Residual Risk Rating		Remaining Hazards	Actions required
What are the steps of the activity / items of equipment?	What are the potential hazards?	Risk Rating based on Risk Matrix	What control methods or measures will be used to reduce the likelihood and/or the consequence of an illness or injury from those hazards?	Residual Risk Rating based on Risk Matrix	What hazard remains?	What additional actions are required (by who and in what timeframe) to raise the level of control?
General Safety Precautions	Both laboratories use some chemicals that are low risk.	Low	**Standard PPE required: lab coat, closed in shoes, safety glasses**. Overspecs supplied for students who wear prescription glasses. Additional safety-wear: latex/nitrile gloves. Always pay attention to advice from demonstrators/tech staff on the handling of specific reagents or equipment. Report any accidents, or potential exposures IMMEDIATELY to a demonstrator or technician.	Low	Students ignore instructions & are removed from lab.	**Lab Induction.** Clear written and verbal instruction will be provided before and during the laboratory classes.
Allergies	Shellfish, strawberries, latex	Low	**Standard PPE.** Wear Nitrile gloves. For those students who have allergies to latex, cotton gloves under nitrile gloves are available.	Low	Students ignore instructions & are removed from lab.	Clear written and verbal instruction will be provided before and during the laboratory classes.
Food and Drink	Due to the potentially harmful materials present in a laboratory, no food or drink should be consumed.	Low	Food or drinks cannot be brought into the laboratory. All personal items must be stowed in backpacks or bags & stored on the hooks provided on the underside of the lab bench. Keep only materials on the	Low	Students ignore instructions & are removed from lab.	Clear written and verbal instruction will be provided before and during the laboratory classes.

			desktop which are to be used for the experiment.			
DNA gels contain SYBR Safe	SYBR Safe will replace Ethidium bromide (potential carcinogen) as the DNA stain used in the electrophoresis	Low	Only demonstrators will handle gels. Wear a lab coat, closed in shoes and protective gloves.	Low	Students ignore instructions & are removed from lab.	Clear written and verbal instruction will be provided before and during the laboratory classes.
Sample prep	Household detergent in eye	Low	Safety glasses, eyewash station handy	Low	Students ignore instructions and PPE requirements	Lab induction Clear written and verbal instruction will be provided before and during the laboratory classes.
Eye strain	Use if microscopes for up to 40 minutes	Low	Regular breaks are scheduled in the manual with a pair or 3 students sharing the observations over the time period.	Low	Students do not take breaks and may become dizzy	Clear written instruction and verbal reminders
Centrifugation		Low	Low speed benchtop microfuges may be used. Ensure centrifuges are balanced and set appropriately by demonstrator before use.	Low	Students grossly over balance and may tip over. Contents are non-hazardous salt solutions with animal cells.	Clear written and verbal instruction will be provided before and during the laboratory classes.
Trip Hazard	Trip & falls	Low	Place all bags/backpacks on hooks under the lab benches to avoid trip hazard. Stow lab chairs under bench to avoid tripping over the lower frame and wheels.	Low	Trips, falls & spills	Students advised of trip hazards as part of induction

Summary of Requirements based on Risk Assessment	Review Period / Date

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Personal Protective Equipment	Lab coats, safety glasses/overspecs, latex/nitrile gloves supplied by UON.	Semester 1, 2025
Other Equipment and Equipment Protection	Students/teachers/staff entering lab must wear fully enclosed shoes, & preferably long pants.	Semester 1, 2025
Training Requirements	Lab induction/overview provided for all classes. Verbal advice delivered via teaching staff	Semester 1, 2025
Procedures, SOPs etc	All SOP's are available in the lab. Procedures are captured within the lab manuals and electronic copies on CESE/SELS sharepoint H & S Library SELS Work Health and Safety Resource	Semester 1, 2025
Relevant Legislation etc.	WHS Act 2011 (NSW) & Regulations / Codes of Practice	

Questions to ask in order to determine the hazards relating to the task:

A Could people be injured or made sick by things such as:

- Noise
- Light
- Radiation
- Toxicity
- Infection
- High or low temperatures
- Electricity
- Moving or falling things (or people)
- Flammable or explosive materials
- Things under tension or pressure (compressed gas or liquid; springs)
- Any other energy sources or stresses
- Biohazardous material
- Laser

B Can workplace practices cause injury or sickness?

- Are there heavy or awkward lifting jobs?
- Can people work in a comfortable posture?

D What could go wrong?

- What if equipment is misused?
- What might people do that they shouldn't
- How could someone be killed?
- How could people be injured?
- What may make people ill?
- Are there any special emergency procedures required?

E Are procedures or organisational systems missing or not being followed?

- Standard Operating Procedures?
- Risk Assessments?
- Induction or training?
- Management of change?
- Safety Inspections?
- Hazard reporting?
- Contractor Management?

F What kinds of injuries could possibly occur?

- Broken bones
- Eye damage

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• If the work is repetitive, can people take breaks? • Are people properly trained? • Do people follow correct work practices? • Are there adequate facilities for the work being performed? • Are universal safety precautions for biohazards followed? • Is there poor housekeeping? Look out for clutter • Torn or slippery flooring • Sharp objects sticking out • Obstacles	• Hearing problems • Strains or sprains • Cuts or abrasions • Bruises • Burns • Lung problems including inhalation injury/ infection • Skin contact • Poisoning • Needle-stick injury • Psychological illness or injury
C Imagine that a child was to enter your work area? • What would you warn them to be extra careful of? • What would do to reduce the harm to them?	

How to Assess Risk

Step 1 – Consider the Consequences

What are the potential consequences of an incident occurring?
Consider what could reasonably happen as well as what may actually happen.

Look at the descriptions and choose the most suitable Consequence.

Consequence	
Serious	Potential Fatality or Injury or Illness with permanent disability
Major	Potential Lost Time Injury requiring time off work (but non-permanent disability)
Moderate	Potential medical treatment Injury or Illness but no lost time
Minor	Potential First Aid Injury
Minimal	No injury but hazard exists or near miss occurred requiring reporting and follow up action

Step 2 – Consider the Likelihood

What is the likelihood of the consequence identified in step 1 happening?

Consider this with the current controls in place.

Look at the descriptions and choose the most suitable Likelihood.

Likelihood	
Almost Certain	The event could be expected to occur in most circumstances: "This is a common problem here".
Likely	The event has a reasonable chance of occurring in usual conditions: "It has happened here before".
Possible	The event might occur occasionally, has occurred sometime: "Has infrequently happened here before".
Unlikely	The event has a small chance of occurring. "It has not happened here but has occurred elsewhere".
Rare	Very unlikely to occur. "It would be extremely rare for it to occur here".

Step 3 – Calculate the Risk Rating

A. Take Step 1 rating and select the correct column.
B. Take Step 2 Rating and select the correct line.
C. The calculated risk rating is where the two ratings cross

CONSEQUENCE	LIKELIHOOD: Rare	Unlikely	Possibly	Likely	Almost Certain
Serious	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME
Major	LOW	MEDIUM	MEDIUM	HIGH	EXTREME
Moderate	LOW	LOW	MEDIUM	MEDIUM	HIGH
Minor	LOW	LOW	LOW	MEDIUM	MEDIUM
Minimal	LOW	LOW	LOW	LOW	LOW

For more information visit - http://www.newcastle.edu.au/current-staff/working-here/work-health-and-safety/managing-health-and-safety-risks

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Controlling the Risk: Risk control is a method of managing the risk with the primary emphasis on controlling the hazards at source. For a risk that is assessed as “extreme” or “high”, steps should be taken immediately to minimize risk of injury. The method of ensuring that risks are controlled effectively is by using the “hierarchy of controls”. The Hierarchy of Controls are:

Control Type	Example
Eliminate	Removing the hazard, eg taking a hazardous piece of equipment out of service.
Substitute	Replacing a hazardous substance or process with a less hazardous one, eg substituting a hazardous substance with a non-hazardous substance.
Engineering	Redesign a process or piece of equipment to make it less hazardous, Isolating the hazard from the person at risk, eg using a guard or barrier, or containing the hazard in an enclosure.
Administrative	Adopting safe work practices or providing appropriate training, instruction or information.
Personal Protective Equipment (PPE)	The use of personal protective equipment could include using gloves, glasses, earmuffs, aprons, safety footwear, dust masks. **NOTE: This is a last resort control and should be used in conjunction with higher level controls.**