



**Biosciences Health and Safety Code of Practice**  
**(Local Rules)**

# Biosciences

## Health and Safety Code of Practice

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The University Biological Safety Standard can be found here: [Biological Safety Standard - Health and safety - University of Exeter](#)

Further details and copies of safety regulations or guidance notes may be found on the HSE Web site <http://www.hse.gov.uk/>

For further information contact the Safety Advisors

**Some useful Web sites (there are many others):**

<http://www.hse.gov.uk>

<http://www.ucea.ac.uk>

# **1. EMERGENCY PROCEDURES**

## **MAJOR ACCIDENTS**

### ***Immediate Action***

- Determine continuing danger and extent of injury. If necessary, evacuate area.
- Summon help by contacting Estate Patrol via SafeZone app (preferred) or telephone (Ext: 01392 722222, int: 2222)
  - The operator will ask for required information about the emergency and arrange for first aid or emergency services if required
- If safe to do so, ensure that the injured are accompanied until help arrives

### ***As Soon As Possible***

- University Staff must ensure that the following are informed:
- The Health and Safety Team in Exeter on extension 5347 (01392 725347)
- The Head of Biosciences and Departmental Manager.
- Details of all accidents **and “near misses”** must be recorded on a University Incident Report Form (HSI01) that is available online at [RIDDOR INFORMATION \(exeter.ac.uk\)](http://RIDDOR INFORMATION(exeter.ac.uk)) . When completed submit via the submit tab at the bottom of the form – this will be sent directly to the Health and Safety Team.

## **MINOR ACCIDENTS**

### ***Immediate Action***

- Determine continuing danger and extent of injury
- Summon help:
- First Aider contact details next to the first aid kits or via the SafeZone app
- The injured are accompanied until help arrives
  - If additional help is required contact Estate Patrol via SafeZone app (preferred) or telephone (Ext: 01392 722222, int: 2222)
  - The operator will ask for required information about the emergency and arrange for additional first aid or emergency services if required

### ***As Soon As Possible***

- Details of all accidents **and “near misses”** must be recorded on a University Incident Report Form (HSI01) that is available online at [RIDDOR INFORMATION \(exeter.ac.uk\)](http://RIDDOR INFORMATION(exeter.ac.uk)) . When completed submit via the submit tab at the bottom of the form – this will be sent directly to the Health and Safety Team.

### ***Emergency numbers in the case of an accident involving radioactive material:***

University Radiation Protection Officer (URPO):  
Elizabeth O'Brien Tel: 01392 722995 Mobile: 07810228882  
Email: E.A.Obrien@exeter.ac.uk

Radiation protection adviser (RPA)

Radiation Protection Advisers (RPAs) (Aurora Health Physics Services Ltd (Aurora)). The lead RPA contact for the University is:

Raj Bunger Mobile: 07824 310988

Email: raj.bunger@aurorahp.co.uk

Aurora also provides a 24/7 emergency call out service in the event of a radiation incident.

If urgent RPA assistance is required, for example telephone advice or the presence of an RPA at an incident, then telephone the following number:

01235 634734

This will go through to the on-call RPA. In the event that the on-call RPA is unable to answer the system will automatically ring the next Aurora RPA in the list until someone answers. Please do not hang up even if the ringing tone ceases following a “please wait while we connect your call” message, the system continues calling us during this time.

Once the RPA answers please provide the following information:

- a. Name, role, employer and contact number.
- b. Location of incident (address and location within site).
- c. What incident has occurred.
- d. A summary of any hazards identified (including non-radiological hazards such as fire, chemicals, biological).
- e. Any details on injured or radiologically contaminated individuals.
- f. Have any emergency services been called?
- g. Have any actions been taken in response to the incident?

## **First Aid**

First Aid should be applied without panic and a First Aider should be consulted as soon as possible. In the case of serious injuries Emergency Services should be called or a doctor or nurse should be consulted immediately.

- A First Aider in Exeter call Estate Patrol via SafeZone app (preferred) or telephone (Ext: 01392 722222, int: 2222)
- Penryn on Internal extension 444 for first aid or 3666 – this diverts to the security team’s mobile number Mobile 07768 557779.
- In the Geoffrey Pope Building Emergency-only telephones are situated in the foyer of the Geoffrey Pope, Hatherly Laboratories and LSI.
- Serious Injuries only: The Emergency Services 999 or 112 (9)999 on internal phones), give Location, Building and Postcode. These are as below:

**Hatherly EX4 4PS.**  
**Geoffrey Pope and Biocat EX4 4QD.**  
**LSI EX4 4QD**

A list of First Aiders can be found at Geoffrey Pope reception and is maintained by the reception staff.

There are First Aid boxes in all of the larger laboratories within the Hatherly, Biocat and Geoffrey Pope Buildings, the Greenhouse and in the corridors of the Geoffrey Pope Building.

## Treatment of severe injuries

### Injuries, Accidents, Incidents and RIDDOR

All accidents and injuries and near misses must be reported on the *accident/incident form (HSI01)* [RIDDOR INFORMATION \(exeter.ac.uk\)](http://exeter.ac.uk). When completed submit via the submit tab at the bottom of the form – this will be sent directly to the Health and Safety Team.

All serious diseases and injuries resulting from accidents at work which cause incapacity for more than seven days, or a specified injury or a death **will** be reported to the HSE Inspectorate under RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995) by the Health and Safety Team which are based in Hope Hall, Prince of Wales Road, Exeter, EX4 4PL

For more information please see the Incident Management Process [Incident management process - Health and safety - University of Exeter](#)

### FIRE (General)

**If you discover a fire in the building firstly \*\*\*Sound the alarm\*\*\* then:**

- **If the fire is small**  
Summon help.  
**Without taking personal risk**, if possible, attack the fire with the firefighting equipment available. Turn off gas and electricity supplies.
- **If the fire is large and out of control**  
Leave immediately, closing the door behind you.  
Do not stop to collect personal belongings.  
Dial (9)999 or 112 from the nearest safe telephone, give location, building and postcode. These are:  
**Hatherly EX4 4PS.**  
**Geoffrey Pope and Biocat EX4 4QD.**  
**LSI EX4 4QD**  
Make your way quickly out of the building to the assembly point.
- In Exeter call Estate Patrol via SafeZone app (preferred) or telephone (Ext: 01392 722222, int: 2222)
- Penryn on Internal extension 444 for first aid or 3666 – this diverts to the security team's mobile number Mobile 07768 557779.
- Let them know if the Fire service has been called if you know this is the case.
- **On hearing the Alarm**
  - Close your window and door.
  - Do not stop to collect possessions.
  - Leave the building quickly via the nearest exit.
  - Go to the assembly point away from the building.
  - Fire Marshals will check their allocated area before leaving the building

### **IF YOU HAVE RESPONSIBILITY FOR A COLLEAGUE WITH SPECIAL NEEDS, CONTACT THAT PERSON AND GIVE ASSISTANCE**

- The assembly point for Hatherly is to the right of the building as you exit on the pavement and lawn towards the Old Library

- The assembly point for Geoffrey Pope Building and Biocatalysis Centre is below the Peter Chalk Building on the grass.
- Biosciences will arrange for fire drills to be performed annually. You **must** vacate the building immediately via the nearest fire exit and go to the assembly point keeping well clear of the building and access roads.
- Fire alarms are tested weekly as follows: Geoffrey Pope Building on Wednesdays, Biocat on Thursdays and Hatherly on Thursday. Please ignore the alarm bell if it rings on this day for a short period of time, if it rings continuously for more than 2 minutes, then please assume it is a fire and leave the building immediately.
- **Know the location of the alarm call points, the fire-fighting equipment, the fire escape, the phones and the assembly point BEFORE there is a fire!**

**Additional information emergency procedures can be found here [Emergency information for staff - Health and safety - University of Exeter](#).**

A list of Fire Marshals and the PIC can be found here: [Fire Marshals GP and Biocat 2022.docx](#)

## **2. GENERAL SAFETY and GOOD LABORATORY PRACTICE**

All staff, research workers, visiting workers and students are responsible for Health and Safety in Biosciences by working in a manner that is clean, tidy and thoughtful at all times and by following G.L.P. Safety Roles and Responsibilities can be found [here 16 02 2021 Safety Roles and Responsibilities in College and Service.pdf](#) Hazardous materials and procedures must be subject to an appropriate safety assessment.

The University's GLP document can be found [here](#).

- The rules within it must be adhered to and breaches may be referred to the Head of Department

### General Safety

- All staff/students working in a research laboratory must complete an induction with their lab manager before commencing work in the laboratory.
- Supervisors must ensure that new staff and postgraduates have appropriate safety training. H&S refreshers must be completed by staff and students annually.
- All postgraduates and new research staff must attend the Health and Safety mandatory Training sessions and adhere to the guidance therein. [Health and safety training - Health and safety - University of Exeter](#)
- All new members of Biosciences are required to read the Biosciences' Code of Safety Practice' before they are issued with keys and/or access cards and before they commence work.
- Each member of academic staff who has research students (including undergraduates and Erasmus students) under his or her supervision is responsible for their safe working in the laboratory including all Health and Safety Paperwork.
- Research students must consult their academic supervisors about all practical work in order that the potential hazards may be assessed, and suitable safety precautions taken. Further discussion with appropriate Safety Officers or the Head of Biosciences may be necessary for some experiments.
- Academic supervisors are responsible for any Health Surveillance Needs of their students to monitor and protect the health of individuals by detecting, as early as possible, any adverse changes that may be caused by lab work practices such as exposure to substances hazardous to health. For more information [Health surveillance - Health and safety - University of Exeter](#)
- All visiting research personnel must comply with the rules specified in this document, either directly or through linking to other applicable rules and standards.

### **Out of Hours Working including Lone Working out of Hours**

- Lone working in laboratories out of normal University hours is not permitted for undergraduates. It is also discouraged for all other members of Biosciences.
- Anyone wishing to do practical work in laboratories after 5.30 p.m. or at weekends involving rapidly toxic materials and other hazardous materials or techniques must provide a risk assessment, this should be authorised by your line manager/academic



supervisor and sent to the lab manager for the area concerned. The Lab Manager may need to seek advice from the Health and Safety team before work can commence. You must have SafeZone on your phone and active in case of Emergency. You must arrange to be within call, and preferably within sight, of another person, i.e., there must be at least TWO persons on each floor. **YOU MUST NOT WORK ALONE IN THE BUILDING OR ON ANY ONE FLOOR.**

- Fire doors must be kept closed at all times and doors in corridors must be kept closed after 6.00 p.m. and at weekends
- No experimental work may be carried out when the University is officially closed (e.g., at Christmas) without the presence at all times in the same laboratory, of a second person qualified in the experimental techniques and safety procedures.
- Individuals wishing to work out of hours must identify associated hazards and assess specific risks via COSHH procedures or risk assessments. [Control of substances hazardous to health \(CoSHH\) - Health and safety - University of Exeter](#) Risk Assessment Forms [Forms, guidance and templates - Health and safety - University of Exeter](#)
- Research work should be 'low risk'. If you haven't already done a lone working risk assessment **for the work you will be doing during closure** you should do so ahead of time. These must be checked and signed by your line manager. [Lone Working Risk Assessment Tool - Approved April 2018 - FINAL.docx \(live.com\)](#)
- A responsible PI will be on call for non-emergency but urgent situations.
- Anyone working after 6.00 p.m. Monday to Friday or at weekends must sign in and out with his or her name, times and location as well as arrival and departure times. This information should be written in the Night Book located at:
  - The main entrance of Geoffrey Pope Building,
  - The lower entrance to the building in Hatherly
  - At the bottom of the stairs in the Biocatalysis Centre

**Note: This is ONLY for security reasons and to ensure that in case of fire a record of people in the building is readily available.**

### **3. RISK ASSESSMENT**

All potentially hazardous activities must be risk assessed by the individual who is carrying out the risk (i.e., student, staff, supervisor), significant findings of the risk assessment recorded, and disseminated to those identified as being at risk in the assessment. This should be done through the writing of a Risk Assessment / COSHH, and Standard Operating Procedures (SOPs) which are shared with individuals so an electronic record is available that states they have read and understood the risks associated with the processes they will be carrying out. Verbal instruction and supervision should also be carried out.

It is usually not sufficient to simply refer inexperienced staff and students to risk assessments. The significant hazards and controls should be explained to them, and their understanding checked.

Biosciences stores all risk assessments electronically on its health and safety SharePoint site: [Biosciences H&S Sharepoint](#)

Before undertaking an activity for the first time, the site should be checked to see if a suitable and sufficient risk assessment for the activity already exists.

If one does, then it can be used for the activity. It must be read and understood.

Similar but not quite suitable risk assessments can be used as a template, as long as any different hazards and controls are identified. This new Risk Assessment must be signed off by your line manager and uploaded onto the Biosciences H&S SharePoint before any work can commence.

If no suitable risk assessment exists, then someone with sufficient knowledge of the activity must create one. This will usually be the person carrying out the activity or another member of the research group, familiar with the activity or similar activities.

If no one is familiar with the activity, or similar activities, then advice should be sought in the first instance from the Departmental H&S co-ordinator, and the University Health and Safety Office.

New risk assessments are normally undertaken by the person intending to carry out the procedure and verified and signed by their line manager/ supervisor/ PI. Risk assessments must be reviewed biennially as standard and always following any changes to procedures etc.

Copies of the various risk assessment forms are available from:

<http://www.exeter.ac.uk/staff/wellbeing/safety/formssignsandtemplates/>

**Annually, the BSO will select Risk Assessments / COSHH from each area to be reviewed by the Biosciences Safety Committee and include the HoD, DoR, Departmental Manager and Technical Services Manager to assure that hazards have been properly identified and the appropriate control measures are in place to minimise risk.**

## **4. HAZARDOUS MATERIALS AND COSHH**

Before carrying out a **procedure** with hazardous materials (including microorganisms), any risk **must be identified and assessed**. It is the responsibility of the Supervisor and the laboratory worker to **jointly** assess the hazards associated with their work. It is necessary for the assessment to be in the written form using a COSHH assessment *pro forma*. The *process assessor* and the *process supervisor* must sign the assessment form. All forms can be found here: [Forms, guidance and templates - Health and safety - University of Exeter](#)

The *Supervisor* may delegate the task of writing the assessment **BUT** they cannot delegate the supervisory responsibility. The *Supervisor* has executive control of and health and safety responsibility for the process and they must ensure that the assessment is complete and appropriate then sign it. The main findings of this assessment must be recorded electronically and then reviewed **biennially** or sooner if there has been a significant change in the work

**For certain very hazardous materials, exposure must be monitored and there should be health surveillance; the use of these materials is not permitted without prior consultation with the safety officers.** [Health surveillance - Health and safety - University of Exeter.](#)

### **Microorganisms & Genetically Modified (GM)**

Micro-organism, cell culture, or human endoparasite, including any which have been genetically modified, which may cause any infection, allergy, toxicity or otherwise create a hazard to human health **must be assessed under COSHH**. [Control of substances hazardous to health \(CoSHH\) - Health and safety - University of Exeter.](#)

The standard for Genetically Modified Organisms (GM) can be found here: [Genetically Modified Organisms \(contained use of\) - Health and safety - University of Exeter](#). This standard includes the LSI Insectary, BSU containment, ARC fish and invertebrates, GM waste disposal, GM storage, Roles and Responsibilities, CRISPR Standard Operating Procedure, ISTR BSG significant Change guidance and all forms and documentation that is required to do GM work.

### **Dangerous Substances and Explosive Atmospheres**

Certain materials such as flammable solvents and gases are covered by the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR), the primary purpose of DSEAR, is to protect workers and others who may be at risk from dangerous substances that can cause a fire, explosion or similar energy-releasing event, such as a runaway exothermic reaction.

In addition to COSHH it may be necessary to complete a DSEAR risk assessment for certain materials: [http://www.exeter.ac.uk/staff/wellbeing/safety/guidance/dangerous\\_substances/](http://www.exeter.ac.uk/staff/wellbeing/safety/guidance/dangerous_substances/)

### **Solvents**

- Laboratory workers must be aware of the hazard associated with solvents; many are highly flammable and toxic and therefore should also be assessed under COSHH.
- Most solvents are very volatile and so may easily be inhaled and will often cause drowsiness even if they are not toxic. Some can cause irritation or dermatitis if spilt on the skin.
- Solvents should be stored in flameproof cabinets; large quantities must not be stored in the open laboratory.

- Flammable solvents should not be stored in refrigerators or freezers unless these are labelled as spark proof, explosion proof or words to that effect.
- **Never** put solvents for disposal down the sink.
- Winchesters must not be left on the floor, on top of shelves or on reagent bottle shelves and they should not be kept on bench working surfaces for longer than necessary.
- Winchesters of solvents should be transported around the building using the carriers available for them and not carried in the hand. Solvents should not be stored in hallways, fire escapes or offices.
- See disposal section for information on disposal.

## Cryogenics

- Liquid nitrogen and other cryogenics must only be stored or conveyed in approved Dewar containers. Sealed containers must **never** be used for cryogenics (including solid CO<sub>2</sub>) due to build-up of dangerous pressure.
- There must be adequate ventilation when using liquid nitrogen and other cryogenics including solid CO<sub>2</sub>. Areas with Liquid Nitrogen should be fitted with an oxygen depletion monitor.
- **Never remain in a small, enclosed space or travel in a lift with a Dewar of liquid nitrogen or other cryogenic material.**
- Persons transferring liquid nitrogen and other cryogenics from storage containers to liquid nitrogen refrigerators or Dewar flasks (including small vacuum flasks) must use face shield, wear cryogenic rated gloves, wear a lab coat, have enclosed footwear and appropriate clothing to prevent liquid nitrogen pooling and causing harm.
- Cryogenic Safety Leads who have attended the University approved training courses are able to provide local training to users to enable them to carry out specific tasks relating to the use of cryogenic substances.
- Users who have been trained by the Cryogenic Safety Leads may:
  - Only use cryogenic equipment they have been trained to use
  - Transport cryogens from the store to their laboratory
  - Contribute to manual handling and cryogenic risk assessments for their laboratory
- The trained 'User' must:
  - Have the training provided by the Cryogenic Safety Leads recorded
  - Have received practical demonstration of the equipment they are being trained to use
  - Have received instruction on the proper use of all relevant safety equipment
  - Have read and understood any relevant risk assessments including manual handling and transportation routes and protocols

For further information on cryogenic safety please see: [Bottled gas and cryogenic gases - Health and safety - University of Exeter](#)

## Compressed gases

- Gas cylinders should be handled by **trained personnel only**.
- Gas regulators should be fitted by **trained personnel only**.
- Be aware that toxic or asphyxiant gases such as CO<sub>2</sub> could build up in confined spaces.
- Gas cylinders must be strapped to a secure support.
- Cylinders must be stored or used away from heat and in an upright position.
- Gas regulators should be fitted by trained personnel only, training must be provided for new research workers before they change cylinder regulators.
- Regulators should only be used for the gas identified on the regulator.

- Regulators should be inspected by the user each time they use it. If the regulator is damaged DO NOT USE, report it to your Gas Safety Lead.
- Regulators should be disposed of after 5 years; the date of expiry can be found on the regulator.
- Never over-tighten regulators when fitting and do not lubricate threads.
- Cylinders should only be moved using the appropriate equipment. Safety shoes and cylinder trolleys are available
- Gases which assist fire e.g., oxygen should be stored separately to flammable gases
- Compressed gas cylinders are colour coded according to the gas contained. Cylinders containing flammable gases have a left-hand thread; non-flammable gas cylinders have a right-hand thread for fitting of regulators.
- Cylinder colours, valve threads or markings, should never be interfered with.
- The door to the laboratory must be labelled with the gases in use to inform fire fighters in the event of a fire and should be clearly labelled on Labcup Hazard Maps.
- Cylinders not in regular use should be returned to the stores (there is a rental charge)

For further information on gas safety please see: [Bottled gas and cryogenic gases - Health and safety - University of Exeter](#)

## Personal Protective equipment (PPE)

Research workers **must** make full use of the safety equipment available, follow the PPE requirements laid down in the Risk Assessment or COSHH and have the requisite items at hand before commencing a potentially dangerous experiment. Such equipment must be regularly checked by the user.

See your local laboratory manager if PPE is required.

If it is necessary to use full respirators for a hazardous procedure, then these respirators must be **face-fitted**. Please see <http://www.exeter.ac.uk/staff/wellbeing/safety/guidance/controlofsubstanceshazardoustohealthcoshh/> for more information

## 5. DISPOSAL

**ENVIRONMENTALLY HAZARDOUS, FLAMMABLE, CRYOGENICS and WATER IMMISCIBLE SUBSTANCES MUST NOT BE DISCHARGED DOWN THE SINKS.**

### Chemicals

All postgraduate workers and staff are responsible for arranging the safe disposal of samples and chemicals that they have ordered but no longer require. This must be in consultation with Supervisors. At the termination of work, when keys are returned, affirmation will be required that all outstanding disposals have been dealt with. Charges may be made to Supervisors who persistently leave unwanted materials in their labs.

**The following guidelines must be adhered to regarding disposal of chemicals:**

- Purchase only enough chemical to complete your experiment.
- When designing and COSHH assessing experiments, remember to give due consideration to the safe disposal of waste.
- All Chemicals should have a Labcup bar code and be scanned into the system at point of receipt in stores. The chemicals will be stored appropriately and on disposal this bar code will be scanned again, and the item marked disposal within Labcup.

- Toxic waste for disposal should be clearly and securely labelled with details of the contents:
  - Identification Number (Generated when a Labwaste disposal form is filled in)
  - Chemical Name
  - Chemical concentration
  - Responsible Person
  - Laboratory number and Building
- Waste mercury is best collected, stored under water and saved for recycling. Traces of mercury remaining should be treated with zinc or sulphur dust, brushed up and put into a screw-capped jar before sending for disposal.
- Material that requires specialized licensed disposal should be carefully labelled and the Environment and Sustainability Advisor should be contacted regarding appropriate disposal arrangements.
- Small quantities of materials and disposables contaminated with chemicals that require incineration; for example, tips contaminated with ethidium bromide or acrylamide, should be placed in a YELLOW Biohazard bag and marked with the warning of CYTOTOXIN and placed in the yellow waste wheelie bin to be sent for incineration (see below). **Keep this waste to a minimum.**
- Large volumes of acid or strong alkali should be neutralised before washing to waste with copious quantities of water.
- Silica Gel Waste and other chromatographic media must be placed in labelled plastic containers. When full, the waste containers must be taken to the stores (DO NOT PLACE IN THE LABORATORY WASTE BINS). Stores will continue to hold a stock of suitable plastic containers available on request.
- Under no circumstances should **any** chemical waste or other hazardous material be placed in the normal laboratory waste bins, please consult with Lab Managers if in doubt.
- Toxic waste for disposal should follow the LabWaste SOP which can be found here [20220120 SOP for lab waste.pdf](#)
- A waste collection form must be filled out on line [LabWaste - Power Apps](#)

## Solvents

- All Solvents will have a Labcup bar code and be scanned into the system at point of receipt in stores and updated with location by the person collecting the solvent.
- The Solvents will be stored appropriately and on disposal this bar code will be scanned again, and the item marked disposal within Labcup.
- Waste solvents must be poured into properly labelled waste solvent containers. They should be clearly and securely labelled with details of the contents:
  - Identification Number (Generated when a Labwaste disposal form is filled in)
  - Chemical Name
  - Chemical concentration
  - Responsible Person
  - Laboratory number and Building
- Remove original labels if reusing bottles.
- **DO NOT** throw solvents down the drains.
- When the containers are full to the shoulder of the bottle, follow the SOP for disposal [20220120 SOP for lab waste.pdf](#), fill in a LabWaste disposal form [LabWaste - Power Apps](#), and transfer them to the Waste Chemical Store for disposal.
- Halogenated hydrocarbon waste should be segregated from non-halogenated hydrocarbon waste into separate bottles and properly labelled accordingly.

- Acetone,
  - Halogenated waste solvent (Chloroform, dichloromethane etc.) and
  - Non-halogenated waste solvent (ethanol, ether etc.).
- As there is a real possibility of explosion of waste acetone and chloroform in the presence of alkali, waste ACETONE should only be added to the blue labelled acetone waste bottles; if for some reason it is contaminated, then it should be sent for disposal in a separate container clearly labelled 'Do not mix with other waste solvent'.
  - In general, waste solvent that contains a high concentration of acid or base should not be indiscriminately added to general waste solvent containers but disposed of separately.
  - Decompose reactive materials before placing in waste solvent bottles.

## Biological Material:

It is important that biological waste is disposed of safely. Appropriate sterilisation procedures must be used prior to disposal of any material contaminated with microorganisms.

Some guidelines:

- **Unlicensed Waste for autoclaving.** Material should be placed in clear plastic autoclave bags for standard autoclaving at the conditions detailed under the risk assessment for the specific material before disposal. These bags should be filled no more than  $\frac{3}{4}$  full and securely sealed. The bag must be labelled with the lab., building and date of filling. This bag should then be placed in the yellow wheelie bin in the stores yard. The key is with the storekeeper. The material is then sent for incineration.
- **Licensed Waste e.g., plant pathogens.** Material should be placed in RED plastic bags for autoclaving under the conditions specified on the DEFRA licence.
- **Unlicensed waste for incineration.** Material that is **unsuitable** for autoclaving should be placed in special YELLOW Biohazard labelled bags.
- This can include small quantities of some volatile chemical waste that requires incineration, but this should be placed in the yellow cin bins not in bags.
- These bags / cin bins should be filled no more than  $\frac{3}{4}$  full and securely sealed. The bag / cin bin must be labelled with the lab., building and date of filling. This bag / cin bin should then be placed in the yellow wheelie bin in the stores yard. The material is then sent for incineration.

**Glass:** There is a dedicated broken glass disposal bin in each laboratory. All chemicals must be rinsed off and any glassware used for microbiological work must be autoclaved before disposal as this glass is ground and recycled for road surfacing. Never put broken glass in ordinary the waste bin in case the staff collecting the waste are accidentally injured. Intact bottles and containers, which have been rinsed, should be placed directly in the glass recycling wheelie bins found in the LSI stores yard or the waste compound next to the Geoffrey Pope driveway.

**Sharps:** Blades, hypodermic needles, capillary spotters and other 'sharps' should be placed in a yellow 'sharps' disposal container available from the Stores. Containers of biologically contaminated sharps should be autoclaved before disposal. Containers should then be placed in the yellow wheelie bin for incineration.

**General Waste:** Low risk waste should be placed in the bins provided.

**Paper:** White paper can be placed in the paper recycling bins found beside each photocopier.

**Waste bins:** A universal colour code for waste bins is currently being implemented throughout Biosciences.

<b>Type of waste</b>	<b>Bin colour</b>
Hand towel waste	Green or Grey
General 'safe' waste	Green
Bacterial and other waste for autoclaving	Red (clear bag)
Licensed GM waste for autoclaving	Red (clear bag)
Biological and chemical waste for incineration (biohazardous material <b>must</b> be autoclaved prior to incineration)	Yellow (yellow bag)
Broken Glass	Blue drums
PPE waste such as Gloves	Grey Bin



## **6. WORKING WITH SOURCES OF IONISING RADIATION REGULATIONS & UNIVERSITY FRAMEWORK**

All persons wishing to work with ionising radiations for the first time **must** contact the Biosciences Radiation Protection Officer who will arrange for registration and training with the University Radiation Protection Officer.

The Ionising Radiation Safety Standard as well as detailed information on the management of Ionising Radiation can be found here [Ionising Radiation safety - Health and safety - University of Exeter](#) .

Within each laboratory working with open sources of ionising radiation there is an appointed **Radiation Protection Supervisor (RPS)** responsible for ensuring adequate radiation protection procedures and training of workers in their area. Bioscience has also appointed a **Radiation Protection Officers (RPO)** who oversees all aspects of radiation within Biosciences.

The RPSs are responsible to the SRPO and both SRPO and RPSs are responsible to the Head of Biosciences who is ultimately responsible for all matters concerning radiation protection in their Biosciences buildings.

The current Radiation Protection officers can be found in the Departmental Statement of H&S Organisation found on the Biosciences Health and Safety Share point here: [11 05 2022 RPS list.xlsx](#).

Radiation protection is based on three general principles:

- (a) Practices exposing individuals to ionising radiation must be justified by the advantages produced.
- (b) Exposures must be kept as low as reasonably achievable.
- (c) The sum of doses received shall not exceed certain limits.

### **The Biosciences Laser Safety Policy**

The University requires that a register be kept of all laser equipment above *Class 3*, the register can be found here [2022 LIVE Laser Register.xlsx](#). All laser systems purchased from manufacturers must carry a label stating the class of that system. Very strict rules apply to the use of lasers and in particular to *Class 3b* and *Class 4* lasers.

Each system must have:

- A designated Laser Safety Officer (the person who owns the laser i.e., supervisor)
- Laser Risk Assessment
- Laser Local Rules document
- Checklist and declaration for fully contained laser product
- SOP for the laser
- Laser Emergency Grab card
- Appropriate PPE and Safety Signs
- LSOs to train all users in the safe operation of the laser system and keep a record of who has been trained

Any research worker intending to use Lasers in Biosciences must read the Laser Safety Standard which can be found here [FINAL - Laser Standard 2018.pdf \(exeter.ac.uk\)](#) and sign a Statement of Compliance **before** starting the work. Any queries should be addressed to your supervisor as the Laser Safety Officer responsibly for the instrument. Further information can be found here [Laser Safety - Health and safety - University of Exeter](#).

## **7. MICROBIOLOGICAL SAFETY**

### **Procurement**

Staff purchasing/acquiring biological materials that require licences or registration must liaise with the University Research Ethics and Governance Team to ensure the University has the correct licence and the appropriate authorities are notified. Prior to acquiring new cell lines or biological material, line managers/academic supervisors must ensure that a suitable biological (and if appropriate) GMO risk assessment is completed according to the requirements outline under the specific regulations. If acquiring previously held substances, line manager/academic supervisors must ensure an up-to-date risk assessment exists to cover the task for which the material is to be used for.

### **Inventory, Labelling and Storage**

Owners of biological materials are required to know where all their biological material is stored and therefore a suitable inventory is required. This inventory should be electronically stored, backed up, secure and accessible to all relevant users. Storage vessels (freezers, fridges, cryo storage etc.) should be labelled with biohazard labels and secured where possible.

### **Risk Assessments**

All staff and students must have suitable and sufficient (for the tasks they are carrying out) instruction and training to enable them to work with biological materials safely. All work involved with biological material needs to be risk assessed. This is to ensure safety for the staff/students and the environment but also compliance with all the relevant regulations. The risk assessments will allow the user to understand the hazard group, GM class (if appropriate), whether it is HTA relevant and what containment level it must be.

The risk assessment must include:

- Hazard group of biological material
- Provenance, cell species, tissue and cell line type
- Route of infection
- Risk factors (Enhanced virulence, low multiplication of infection)
- Infective dose (Dose of biological agent required to cause initial infection in host)
- Containment level
- Control measures required
- Possible incidental exposures
- Blood borne viruses/allergens
- Occupational health and health surveillance requirements
- Emergency arrangements

### **Transport**

All biological material transferred between laboratories within the University should only be carried where absolutely necessary.

If you wish to transport biological material outside the University, then the local Biological Safety Officer (BSO) ([About Biosciences in Exeter | Biosciences | University of Exeter](#)) must be consulted for advice. The University has trained staff on the requirement of various transport methods which include (ADR for road), (IMDG for sea) and (IATA for air). Please see the stores manager or your lab manager for assistance. The University has an appointed Dangerous Good Safety Advisor (DGSA) whose details are held with the Health and Safety Team.

Staff or students wishing to transfer biological material to another organisation must arrange a formal Materials Transfer Agreement (contact the University Legal Services team via their website to request an MTA).

## **Disposal and Decontamination**

It is important for purchasers to consider the waste disposal route before purchasing or using biological material for the first time. A suitable waste disposal route must be identified. All biological material must be disposed of in a way to ensure complete deactivation. For GMO's the disposal method must be validated. All equipment which has been used in conjunction with biological material must be decontaminated and assessed for any residual risk posed before it is released for maintenance, repair or disposal. All equipment for disposal must be decontaminated and have a Decontamination for Disposal certificate attached to the machine prior to pick up. The document can be found on the Biosciences Health and Safety SharePoint here: [Decontamination for Disposal clearance \(002\).doc](#).

For additional information please read [University Standard on Biological Safety](#).

## **8. FIELDWORK**

### **Preparing for Fieldwork**

Fieldwork can be incredibly varied and so it's not possible to cover concisely all scenarios that may be encountered in this document.

However, in all cases, a safe system of work must be established for all staff and students involved in fieldwork.

The full field safety COP, risk assessment forms and guidance notes are available on: the University website at [Fieldwork & Travel - Health and safety - University of Exeter](#)

This should be consulted while planning fieldwork – queries should be directed towards the [University Safety team](#)

## **9. TRANSPORTATION**

### **Use of Biosciences' Vehicles**

Biosciences has a number of vehicles, which may be driven by authorised persons on Biosciences' business.

If you need to use a vehicle, contact the GP/LSI Stores manager.

- Employees will only be authorised to drive vehicles for university business in the categories stated on their driving licence.
- To become a university 'Authorised Driver', employees must complete the 'Authorised Drivers Registration Form' (DRF01), obtain a driving licence summary sheet (using the Gov.UK website) and give a copy of each to their manager / supervisor along with their photo card driving licence for authorisation.
- A copy of the registration form and driving licence should be given to the Stores Manager or 'Authorised Drivers' manager and kept
- 'Authorised Drivers' are responsible for informing their manager / supervisor and the Authorised Drivers manager/Stores manager of any changes to their driving licences or other documentation and their capability to drive e.g., medical condition.
- All managers will inform 'Authorised Drivers' of the University requirements to drive on University business as noted in this Standard. 'Authorised Drivers' will be expected to commit to the rules imposed on them by their manager / supervisor as part of the authorisation process.
- Only authorised persons may travel in Biosciences' vehicles.

- Any unauthorised use or the misuse of vehicles may lead to withdrawal of the privilege of using them.
- Users must ensure that the vehicle is in a safe condition (check the oil and water and condition of tyres etc.) before journey.
- First aid kits are kept in each vehicle.
- Drivers are advised that the University Motor Insurers, involve excesses in cases where claims involve drivers under the age of 24, and over 25 years of age where a full driving licence has not been held for 12 months. Drivers qualified to avoid the excesses should drive whenever possible.
- Private vehicles should not be used for Bioscience's business when a Biosciences' vehicle is available

Insurance: University owned vehicles

- The University maintains comprehensive cover for its fleet vehicles.
- Fleet vehicle insurance details must be inserted into the Drivers Handbook in each vehicle.
- In the event of an accident, details of the University's insurer (or own insurer) should be provided to the other parties involved and if requested, the Police.
  - Details must be reported to the Head of Biosciences and a report need only be made to the College Safety Office.
- If in doubt, managers / supervisors can contact the Insurance Office for advice.
- Drivers are advised that the University Motor Insurers, involve excesses in cases where claims involve drivers under the age of 24, and over 25 years of age where a full driving licence has not been held for 12 months. Drivers qualified to avoid the excesses should drive whenever possible.

### **Use of Private Vehicles on Biosciences' Business**

It is recommended that hired vehicles or Biosciences' vehicles are used whenever possible. If the use of a private vehicle is unavoidable then the following points must be considered:

- The vehicle must be taxed, road-worthy and suitable for the intended purpose
- The Private insurance cover must be adequate i.e., it must specify for business use.
- The Supervisor/Head of Biosciences considers such a use is necessary
- The driver holds a full UK drivers' licence

**See:**

<http://www.exeter.ac.uk/staff/wellbeing/safety/guidance/drivingvehiclesonuniversitybusiness/>

### **Minibus Passenger Transport Vehicles**

Biosciences requires that minibus drivers attend recognised minibus driver training. Driver competency is a combination of experience, physical ability and training. Retraining every **4 years** is recommended. Drivers are trained in order to reduce the dangers associated with driving minibuses and undertake practicable means to:

- a) Reduce the likelihood of an accident occurring; and
- b) Mitigate the extent of personal injury.

**Minibus drivers should be registered as a Competent Trained Minibus Driver before driving a minibus.**

**See:**

<http://www.exeter.ac.uk/staff/wellbeing/safety/guidance/drivingvehiclesonuniversitybusiness/>

## **10. MANUAL HANDLING OPERATIONS**

Heavy, difficult and repetitive loads require a written Manual Handling Risk Assessment to be completed. Appropriate steps must be taken to reduce the risk of injury to the lowest level practicable.

- Managers / Supervisors (or their appointed and trained deputy) must risk assess all identified manual handling tasks/activities using the appropriate Manual Handling Risk Assessment tool.
- **Manual Handling Preliminary Risk Assessment tool**  
([Manual Handling Preliminary Risk Assessment.docx \(live.com\)](#))
- This tool is the initial form to be used to assess low risk manual handling tasks/activities which may be sufficient for certain tasks (**Green**).
- It will also identify the need for action to be taken (**Amber**) to reduce the risks associated with a particular task/activity
- A more comprehensive assessment is required (**Red**) depending on the type of task/activity being assessed.
- **Manual Handling Risk Assessment tool**  
([Manual Handling Risk Assessment \(Updated March 2020\).docx \(live.com\)](#))
- This tool is a more comprehensive assessment (mentioned above) of tasks/activities that warrant an in-depth analysis of the work that staff are required to undertake.
- Managers / Supervisors or their appointed deputy must ensure that staff receive appropriate information, instruction, training and supervision in accordance with the risk assessment to ensure that all staff follow the procedures that have been put in place to reduce the risks of harm/injury to the lowest level reasonably practicable.
- Managers / Supervisors should share the risk assessment process, consult with relevant staff and keep a copy of the paperwork on file.

Full details can be found in the [University Manual Handling Safety Standard](#).

The department strongly encourages all staff and postgraduate research students to undertake manual handling training, and for certain roles it may be mandatory. Line managers and academic supervisors will inform you if this applies to your role.

## **11. PCs and DISPLAY SCREEN EQUIPMENT**

A number of health problems are attributed to the use of DSE. Where problems occur, they are generally caused by the way in which DSEs are used rather than the DSE itself. Some users may get aches and pains in their hands, wrists, arms, neck, shoulders or back, especially after long periods of uninterrupted DSE work.

All DSE Users will complete a DSE workstation self-assessment at the start of their employment and following major changes to the equipment, furniture, work environment or software such as:

- Users change workstations e.g., office move
- The nature of work tasks changes considerably
- It is thought that the controls in place may be causing other problems
- The DSE workstation self-assessment will also need to be repeated if staff experience any pains or discomfort using display screen equipment.
- **DSE Self-Assessment form can be found here** ([Display Screen Equipment \(DSE\) work station self assessment \(office.com\)](#))

- A score will be generated at the end of the assessment which will be emailed to the individual, their supervisor / manager and to the Health and Safety Team if appropriate, together with guidance for any action required.

See guidance at - <http://www.exeter.ac.uk/staff/wellbeing/safety/guidance/dse/>

Problems can usually be avoided by good workplace design and by good working practices. If you wish to have your workstation assessed then please contact your supervisor and/or the Health and Safety Team [safety@exeter.ac.uk](mailto:safety@exeter.ac.uk)

## **12. SAFE USE OF EQUIPMENT**

### **Repairs**

All staff and students should be vigilant about the safe condition and operation of equipment. Any suspected fault should be reported to a member of technical services who will arrange repair.

### **General**

- The use of extension leads and multi-sockets is discouraged.
- The use of privately owned equipment/appliances and extension leads is discouraged. Such equipment must undergo PAT testing before use. The University insurance will only cover such equipment that is directly required for work, non-authorized equipment is the responsibility of the owner, and he/she is personally liable for any damage, accident, injury or death resulting from its use.
- A three-pronged plug with suitably rated fuse should only be fitted by qualified personnel.
- Faults to permanent wiring and 13A sockets, etc. must be reported technical services in the first instance so the fault can be made safe by switching off the power supply to the immediate area if possible.
- Campus Services Help Desk must be notified using the maintenance ticket system found here [Campus Services Help Desk | Campus Services Help Desk | University of Exeter](#) for repair.
- Special care must be taken when using electrical equipment in the vicinity of flammable vapours. Precautions must be taken to ensure the equipment is spark proofed. This especially applies to fridges and freezers.
- Earth leakage circuit breakers or RCCBs should be used when equipment is operated under adverse conditions e.g., in damp or cold areas.

### **Electrical Safety Testing of Equipment (PAT)**

All electrical equipment and appliances used within Biosciences must be tested at recommended intervals. Estates Services manages and implements PAT testing across the estate. A green label will be attached to the equipment stating date of test and when the next test is due. Check all equipment that you use has a valid electrical test label before use. Do not use equipment that does not have a valid test label. Any item that has failed the PAT test or is faulty should be labelled accordingly and **taken out of service immediately and a member of technical services informed**. Further information on PAT testing can be found here: [Maintaining portable electricla equipment \(hse.gov.uk\)](#).

## Autoclaves

***All users must receive instruction on the use of autoclaves and be authorised by the local laboratory manager before using any autoclave.***

Full details of use are given during training and can be found in the associated SOP. However, the following always applies:

- Undergraduates are not permitted to use autoclaves
- Autoclave use must be recorded in the logbook
- Be aware of the significant findings of the risk assessment associated with the autoclave
- Follow the procedures as laid out in the abridged operating instructions that may be found in the autoclave rooms.

## Centrifuges

Centrifuges must not be used until the researcher has received proper training. This especially applies to all high-speed ultracentrifuges. Training is provided by Technical Services staff.

### **MISUSE OF CENTRIFUGES CAN CAUSE SEVERE HAZARDS & DAMAGE**

- Always follow the instructions.
- Always use the correct rotor and centrifuge tubes and ensure tubes are weight balanced and symmetrically loaded within the rotor. **Never spin just one tube.**
- Always ensure all of the buckets are securely fitted on swing out rotors.
- Centrifuge caps and buckets are in matched sets; never mix caps or buckets from different sets.
- Alcohols and many other solvents attack polycarbonate tubes. Other plastic centrifuge tubes are susceptible to strong solvents and chemicals e.g., phenol.
- Most plastic tubes should be completely filled, or they may collapse at high speeds.
- Always remove tubes and rotors from centrifuges after use. Rinse out rotor with clean water and leave to drain on a plastic mat.
- If a spillage has occurred, wash rotor and wipe inside of centrifuge bowl with water and a mild detergent e.g., Teepol, and then rinse the rotor and wipe the centrifuge bowl using clean water and dry. Special precautions must be taken if infective, radioactive or poisonous materials are spilt.
- **Never** stop a centrifuge rotor by hand.
- Material in centrifuge tubes that are not capped or incorrectly sealed will produce aerosols within the centrifuge bowl and surrounding atmosphere. This is extremely dangerous when infective, poisonous or radioactive materials are being centrifuged. Even relatively harmless bacteria can cause unpleasant chest complaints when inhaled in this form.
- To minimise the consequences resulting from the production of aerosols, spun tubes containing potentially harmful microorganisms belonging to Hazard Group 2 and above must only be opened in a microbiological safety cabinet

## Electrophoresis Equipment

- Special care should be taken when operating electrophoresis equipment and similar equipment involving high D.C. voltages.
- All cables and plugs should be inspected each time they are used, and great care must be taken to ensure that safety interlocks are working correctly.

- The interlocks must never be tampered with, and no modification may be made.
- The power supply must always be switched off before making or modifying the connections to the electrophoresis tank.
- Take care that buffers are not spilt over leads and connections.

## **Naked flames**

- Naked flames are a leading cause of uncontrolled fires in biological labs
- Naked flames include spirit and gas burners, gas burners may be mains, cylinder or cannister (camping gas) fed.
- Naked flames must never be left unattended
- Burners must always be used on a clear bench, with nothing in the area above them, i.e., shelves
- Spirit burners must not be placed near the bench edge, and if practicable placed in a spill tray
- Anyone using a naked flame must be aware of firefighting apparatus in their immediate area

## **13. Out of Hours Running Procedure for Equipment**

### **Equipment Left Running Permanently**

Each laboratory must list all equipment left running permanently. This list should be reviewed annually by the lab users with support from their Lab Manager and consider if this equipment could be switched off.

- Electrical equipment must have a current electrical safety test and have a plug marked orange.
- Only equipment such as incubators, refrigerators etc. or items that are professionally plumbed in should be left running permanently.
- Contact telephone numbers must be supplied for each item of equipment This particularly recommended for freezers in case of a failure.
- A copy of the list should be lodged in the red folder at the reception desk in the appropriate building.

**Estate Patrol check the building during the night and may turn off any items without appropriate information or permits.**

## **14. Access / Security of Home Office Facilities**

Access to all home office licensed areas is restricted to those who have a duty of care for the animals, and to those who have a legitimate reason to enter. Family members (i.e. children, spouses) and friends of staff are not permitted to enter the facility.

### **SECURITY**

All staff requiring entry into the Home Office animal Facilities must have gone through the security screening process. If you are unsure if you have not been through this process please contact [I.harvey@exeter.ac.uk](mailto:I.harvey@exeter.ac.uk)

ALL Facility USERS/ STAFF/ VISITORS must sign in.

### **OCCUPATIONAL HEALTH**



All Users of the facilities must speak to the animal facilities management regarding occupational health registration. This is to monitor and protect facility users from inhaled allergens (BSU) or from wet working hazards (ARC).

## **15. Permits to Work**

For safety and insurance purposes, service engineers and members of the Campus Services / Estates Teams must obtain a permit to work before commencing work in any laboratory. The standard can be found here: [Permit to work - Health and safety - University of Exeter](#).

They must contact the appropriate lab manager and arrange a date for work to commence and allow for notification of all users of the space. The lab manager will arrange for a lab induction to identify any hazards associated with the area. The lab manager or Technical Services Manager will provide a Permit to Work. [03 07 2019 Permit to Work MASTER - New.docx](#). These permits should be signed by the contractor and then a copy stored on the Biosciences Health and Safety SharePoint.

Equipment for repair should be clean and free from hazards before they commence work. Due attention should be given to areas containing asbestos, these areas will be highlighted by Estates through their Asbestos manager to staff and contractors. These permits also ensure that the workers are covered by the University insurance.