



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

**Faculty of Science, Technology,
Engineering and
Mathematics (STEM)**

Health & Safety Guidance Manual 2026.27

- Junior Freshman/Incoming Undergraduate Students,
- Socrates & Visiting Students (including Human Health and Disease students),
- Post-Graduate Students & Research Staff

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This Health and Safety booklet applies to **all** students taking:

- TR060: Biological and Biomedical Sciences,
- TR061: Chemical Sciences,
- TR062: Geography and Geosciences
- TR063: Physical Science Programmes
- **AND** those students outside of STEM taking Science modules for e.g. BYUxxx, CHUxxx, GSU/GGUxxx, MAUxxx, PYUxxx.

It is a guide to what is expected of you with regard to Health and Safety. Please retain for future reference.

Produced by: The Science Course Office
Trinity College, Dublin 2

Email: Science@tcd.ie

Webpage: <https://www.tcd.ie/science/undergraduate/>

Section 1

1.1 Statement of Intent

The purpose of this document is to provide foundation information for research staff and postgraduate students and for all Junior Freshman, Socrates and visiting students, taking courses in this Faculty, on how to work safely in laboratories or on field trips in situations which are potentially hazardous.

The guidelines set out must be understood and observed, but observation is not enough. You must foster a responsible attitude and remain alert and aware at all times. Common sense is your best ally in ensuring both your own and your colleagues' safety. Remember that most, if not all, experiments are potentially hazardous. Therefore, never work unsupervised or alone while performing laboratory or fieldwork. If you are a student, you must always await specific instruction before undertaking experimental or fieldwork of any kind. Examples of specific instructions may be provided by the academic staff supervisor, demonstrator or technician in the laboratory or from your laboratory manual.

In the interests of safety, any student who fails to obey regulations or instructions from academic, technical staff or demonstrators may be excluded from the class, laboratory or fieldtrip, as appropriate. College disciplinary procedures may be invoked to deal with student or staff violations of regulations.

The Faculty of Science, Technology, Engineering and Mathematics (STEM) is committed to ensuring compliance within the *Safety, Health and Welfare at Work Act 2005* requirements and legislation and to the College's safety codes of practice and guidelines. Safety, health and welfare of staff and students is managed within College in accordance with statutory legislation and guidance published by the Health and Safety Authority; the Environmental Protection Agency and Department of Health and Children.

All reasonable steps will be undertaken to ensure that no persons, including staff, students or on-site visitors are put at risk by or as a result of the activities of the teaching or research laboratories. Resources as far as reasonably practical will be made available to ensure these steps are adequately controlled. All staff and students will receive adequate training to ensure all laboratory activities are undertaken in a safe manner with pro-active approaches being taken. This local statement will be kept up to date through annual review and if necessary, revision.

You have responsibilities for your own safety and that of your classmates or work colleagues. This extends to any classes taken outside of normal hours, as you could carelessly leave behind hazards injurious to them e.g. broken glass, infectious bacteria, toxic and dangerous chemicals etc. Your responsibility is in line with standard practice as you will find it when entering employment. There can be no excuses when you are provided with equipment, training and instructions necessary for the work in hand. You have a legal duty under the *Safety, Health and Welfare at Work Act, 2005*, to act responsibly so as not to endanger others.

1.2 Objective of this Health and Safety manual

The purpose of this document is to provide information for new staff and students in the School while working in laboratories, offices, lecture halls or on field trips. The health and safety of staff, students and visitors is important. The *Safety, Health and Welfare at Work Act 2005* requires that you take all precautions, as far as is reasonably practicable, to avoid endangering yourself or others by your activities. The Health and Safety Statement and Codes of Practice for the Department areas are set out below and you must read, understand and abide by them. You are required to sign the enclosed declaration at induction and return it to the School Office. Students will be excluded from all laboratories and workshops until they have signed and returned the declaration.

The aim of this document and H&S policies is to ensure the following main objectives:

Ensure activities are managed and conducted in a manner that ensures the safety, health and welfare of all employees, students, visitors and contractors/service providers.

Encourage health and safety culture as an integral part of work by all staff and students ensuring that students develop good safety habits that they will carry on into later life. Where hazards and risks to health cannot be eliminated from articles or substances suitable protective clothing and equipment are provided and strictly implemented. Implementing plans and procedures to be used in the events of emergencies and/or serious danger.

Conform to the requirements of the Safety, Health and Welfare at Work Act 2005 and any relevant subsidiary legislation.

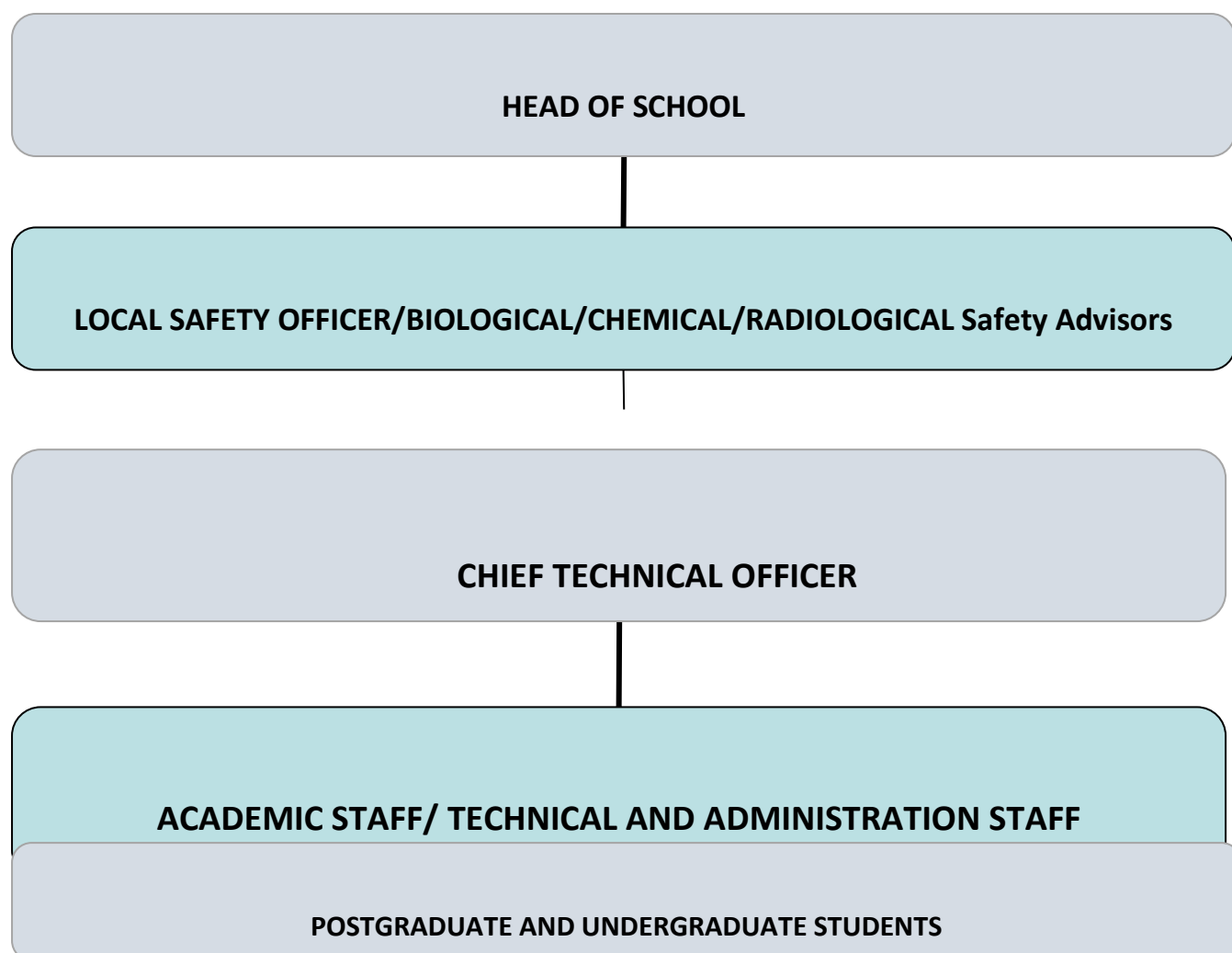
1.3 Health and Safety structure

This Departmental Safety Statement supplements the College Safety Statement and College Policies, which are contained in the Staff Handbook and are accessible on the web at:

<https://www.tcd.ie/safetyoffice/safety-management/>

The Board of the College determines overall policy on Health and Safety matters and has put in place a management and organisation structure (described in Appendix D). This should be read in conjunction with the Board statement on Safety published in the University Calendar 2024/25.

The organisation chart for health and safety within the School is shown below:



All personnel within the School have a responsibility to contribute to the continuous monitoring of safety performance on a day-to-day basis. This can be achieved by forwarding comments, queries and complaints on safety matters to the School Safety Officers or Chief Technical Officer.

1.4 Science Health and Safety Forms

All Junior Fresh Science students, and students taking Science modules within the Faculty of STEM, will be provided with a Health and Safety Booklet outlining the safety requirements relevant to their studies.

As a condition of participation in laboratory, fieldwork, and other practical activities, students are required to:

- Read, understand, and comply with all Health and Safety policies, procedures, and guidance issued by the Science Course Office and the relevant Schools and Disciplines.
- Follow all instructions and advice provided by the Head of School/Department, academic and technical staff, the College Safety Officer, Local Safety Officers, and any other authorised personnel responsible for health and safety.

- Conduct themselves responsibly at all times while working in laboratories, workshops, field sites, and any other learning environments, and take reasonable care for their own health and safety and that of others.

Students who fail to comply with these requirements may be subject to the College's disciplinary procedures. Serious breaches of Health and Safety regulations or irresponsible behaviour may result in action being taken under the relevant staff or student disciplinary processes, including referral to the Senior Dean or Junior Dean, as appropriate.

By undertaking Science modules, students acknowledge their responsibility to adhere to these Health and Safety requirements and to contribute to maintaining a safe learning environment for all.

Full information and access to the relevant forms can be found:

https://tcd.blackboard.com/ultra/courses/_105569_1/outline

Section 2 – General Safety Rules

2.1 Fire Alarm Procedure

ACTION IN THE EVENT OF FIRE

Faculty of Science, Technology, Engineering and Mathematics (STEM)

ON DISCOVERY OF FIRE

- **RAISE THE ALARM**, by breaking the nearest break-glass or call point
- **LEAVE** the building using nearest route, closing doors behind you
- **NOTIFY Building Security at Ph. 01-896 1999 (PANOZ) or Ph 01 896 3999 (TBSI)**

Each building has a specific assembly point assigned to it in the near vicinity, you must know where Fire Assembly Points is in advance of any emergency (see section 2.4)

e.g. PANOZ- REPORT to your Assembly Point at 'E' - to the sides of the Science Gallery or to the designated "safe areas in the case of fire" Refuge Point beside the lifts.

TBSI-REPORT to your Assembly Point at 'G' - to the sides of the Institute on Cumberland St South and Sandwich Street



In the event of a fire alarm the access area for both lifts in the Panoz Institute act as refuge area with emergency communication system.

ON HEARING THE FIRE ALARM

- **LEAVE** the building using nearest route, closing doors behind you
- **REPORT** to your assembly point as above
- **DO NOT TAKE RISKS**
- **DO NOT RETURN** to the building for any reason until authorized
- **DO NOT USE LIFTS**, with the exception of wheelchair users who proceed to refuge areas described above.

EMERGENCY EXITS

CHECK AND FAMILIARISE yourself with the nearest exit(s) from your building, break glass units and the location of your Assembly Point. **KEEP EXIT ROUTES CLEAR** at all times

FIRE EXTINGUISHERS

KEEP ACCESS CLEAR, report any faults and only use if trained to do so

GOOD HOUSEKEEPING

Keep your area clean, tidy and clutter free. Remove rubbish regularly and report any electrical faults to States and Facilities 896-4000

2.2 Emergency Details

- The internal telephone number **Ph. 01-896 1999** (or 01 8963999 from TBSI) provides immediate access to professional assistance on a 24-hour basis.
- Be prepared to state the:
- Type of assistance required (ambulance, fire-brigade, police etc...)
- Type of emergency (fire, injury, etc...)
- Name, extension number and location (also mobile if possible)
- If possible and safe to do so, keep close to the telephone in order to give further information should it be required by the emergency services.
- This number should only be used in an emergency. The 24 hour security centre is at 1317 (018961317) for non-emergency calls.

2.3 Emergency evacuation of laboratories, lecture theatres and buildings

Emergency evacuation of a laboratory and building may be signalled by the alarm bell (a continuous ringing bell), the public address system or in person by instructor/demonstrators.

In an emergency evacuation you must:

- ✓ Leave the building promptly (do not collect your personal effects);
- ✓ Walk via the nearest escape route to an exit door;
- ✓ Do not rush, push or shove past others;
- ✓ Do not stand around outside building (danger of glass, shrapnel and blocking others etc.);
- ✓ Report to the designated assembly point (see map at back of booklet)

2.4 Fire Assembly Points

On discovery of a fire, you must:

- Raise the alarm by breaking the nearest break-glass unit (red wall-mounted call-points);
- Leave the building promptly;
- Inform a member of staff or the Security Centre (Ext: 1999 or 01-869-1999);
- Report to the designated assembly point.

Any attempt to extinguish the fire should only be made after the alarm has been raised, and only if you have a clear escape route, it is safe to do so and if you have been trained by College in the use of fire extinguishers.

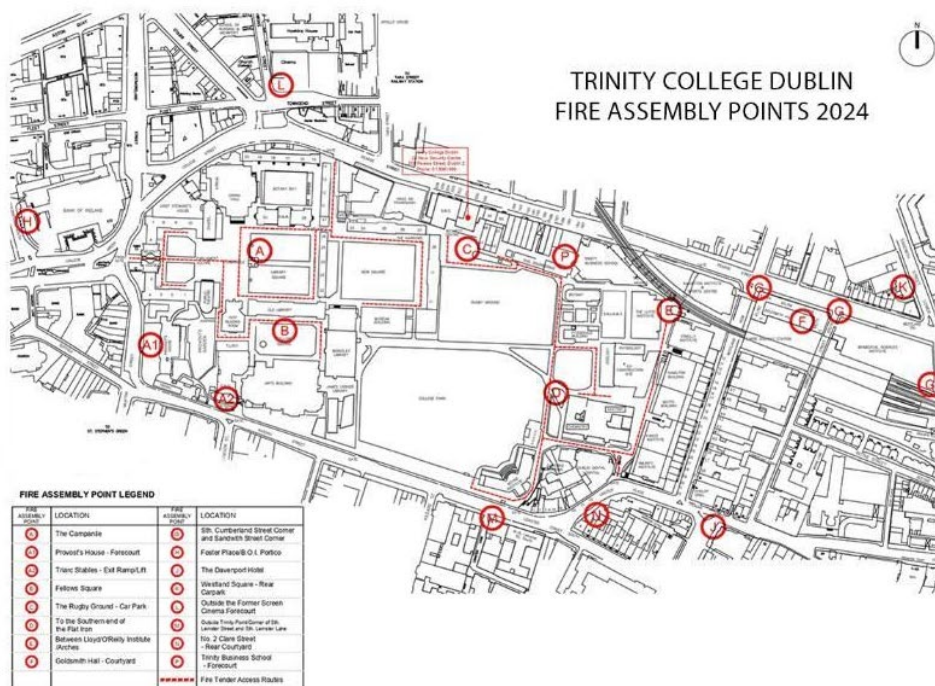
All staff and students are asked to familiarise themselves with the locations of relevant break-glass units and exit routes.

Safety officers and fire wardens for each School or building have been appointed. Follow their directions in the event of a fire or other emergency evacuation procedure.

Each building has a specific assembly point assigned to it in the near vicinity, you must know where Fire Assembly Points is in advance of any emergency

2.5 Fire Assembly Points Map

A map of the assembly points to be used in case of fire, are outlined below.



2.6 First Aid

For serious injuries during normal office hours, emergency medical attention can be obtained from the Student Health Services by contacting Ext. 1556. For minor injuries such as cuts or burns assistance may be via members of staff and staff with first aider training. Should the local staff or first aiders be unavailable then the emergency services can be contacted on Ext. 1999 or 01-8961999 (PANOZ) and Ext. 3999 (TBSI) or 01-89633999.

SAVE THOSE NUMBERS ON YOUR MOBILE PHONE AS A CONTACT

First aid boxes will be kept in all laboratories and maintained via the Technical Officer staff members. If contents of the box have been used or noted as missing please contact the Chief Technical Officer to replace missing or outdated items.

2.7 Reporting of accidents

All accidents or incidents and near misses must be immediately reported to the School Safety Officer/Chief Technical Officer or nearest staff-member/demonstrator (if in a Teaching lab situation). The School Safety Officer must complete an accident report form on iProtectU including details of witnesses. This form can be found on the college safety reporting software iProtectu (<https://iprotectu.tcd.ie/>).

The points of contact for such details are:

Position	Name	Contact detail
College Safety Officer	Dr. Katharine Murray	01 8961914
Biological Safety Officer	Dr. Mary Mc Donnell	01896 3965
Radiological Protection Officer	Mr.Hassan Mansaray	Ext 2887
Fire/Safety Officer	Mr. Cathal Ryan	Ext 3543
General Safety Officer	Mr Andrew Mc Conville	Ext 3539
Chemical Safety Officer	Mr. Peter Ó Briain	Ext 3501
Laser Safety	Mr. Christopher Smith	Ext 3595

Emergency and other contact details

Services	Contact	No
Fire, Ambulance, Police, Personal & Building Security	Front Gate Security	1999 or Ph. 01-896 1999
Plumbing, Electrical, Gas, Chemical, etc	Estates & Facilities	Ext 4000
GP out-of-hours service	DubDoc	(01) 4545607

Do Not call the national emergency service directly; instead, call Front Gate Security (Ext. 1999 or Ph. 01-896 1999)

2.8 Access to School Buildings

The normal working hours for College are 08:00 – 18:00, Monday to Friday. Outside these hours is limited strictly to authorized staff, postgraduate students and authorised visitors and contractors. Contractors and maintenance personnel must be made aware of the hazards in the areas to which they are admitted.

Visitors must be informed of all school safety rules, are aware of local fire evacuation procedures and have been informed of any special risks associated with area. They should not be left unattended unless suitably qualified in the laboratory. Transition year students who are attached to the school are classified as visitors.

For research Postdocs, Post-grads and staff a 'late book' or an online monitoring record will be kept with regard entrance to the laboratories on the ground floor in PANOZ and in the Security Desk in the TBSI lobby. They must be signed in and out after the 08:00-18:00 time period, or at any time on a Saturday, Sunday or public holidays. All laboratories and offices must be vacated by 10pm.

2.9 Working in Isolation

Working on experiments or laboratory work outside normal working hours is not permitted without prior authorisation from the project supervisor after he/she has conducted a full risk assessment, downloaded the Safe Zone app, devised a safe system of work should an accident occur and have followed the College 'Lone Working' policy. Another person **must be close by** when all experiments are taking place who is aware of their presence and activity so that they can summon assistance in the event of an accident.

Undergraduates are NOT allowed to work alone – please see College 'Lone Working Policy' <https://www.tcd.ie/media/tcd/about/policies/pdfs/Trinity-College-Lone-Working-Policy.pdf>

All laboratories must be vacated by 10pm.

Isolated individuals must not carry out potentially hazardous work or activities at any time

2.10 Out of hours Lectures/Events

All out-of-hours events being organised by a School member or using School facilities can only be carried out following the completion of an Event Management Plan. Routine events such as meetings and lectures require a safety management checklist while Non-Routine events require a safety management plan. Forms and details for these can be found at:

<https://www.tcd.ie/commercial/enquiries-and-events/>https://www.tcd.ie/Junior_Dean/events/

2.11 Travelling for Work

The college provides a business travel insurance scheme with cover only being provided once the journey is authorised via the Head of School and a travel insurance form has been completed and returned to the estates and facilities department prior to the start of the journey.

Travel insurance forms and other details can be found at:

<https://tcdud.sharepoint.com/sites/EstatesandFacilitiesInsurance/SitePages/TRAVEL-INSURANCE.aspx>

Section 3

3.1 Safety in Teaching Labs and Lecture Theatres

The following rules apply specifically to all staff, demonstrators and undergraduate students who are authorized to enter and work in the teaching laboratories and lecture theatres of the School. Please note that all demonstrators and technical officers must have completed the Fire Extinguisher training course before entering the laboratory.

All staff and students must have read and abide by the Health and Safety Guidance manual issued by the Faculty of Engineering, Mathematics and Science.

A suitable laboratory coat must be worn while in the laboratories. **Students will not be allowed to attend a practical if they do not have a laboratory coat and safety glasses.**

Safety glasses must be worn when in laboratories involved with access/use of chemicals.

- Those wearing spectacles must wear the 'Pulsafe' kind which go over the normal spectacles.
- Contact lenses may constitute an additional hazard.
- Shoes should have non-slip soles and should cover the feet.
- Open toed sandals, flip-flops, high heels, ballet-style, crocs and canvas shoes/runners are not allowed.
- Long hair must be properly tied back and adequately restrained.
- No loose hanging jewelry is permitted in the laboratory.
- No eating or drinking is allowed in the laboratory.
- Gloves must be worn in all laboratory environments involving the use of chemicals or biological agents.
- Coats, bags or personal belongings must not be left on lab benches or anywhere that they could cause an obstruction.
- Students should not congregate at the entrance to a lab or lecture theatre or at building entrances.
- Undergraduates are not permitted to work unsupervised – please refer to the College Lone Working policy
- If any glass apparatus/container/pipette breaks while in use please inform a member of staff immediately to avail of a clean-up kit and hazard control.
- Students and staff must make themselves familiar with the European Standard Chemical hazard symbols shown below and make use of any suitable arrangements provided via the instructions printed on the chemical container or the Safety Data Sheet available online.

	Gas under pressure Symbol: Gas cylinder
	Explosive Symbol: Exploding bomb
	Oxidising Symbol: Flame over circle
	Flammable Symbol: Flame
	Corrosive Symbol: Corrosion
	Health hazard/Hazardous to the ozone layer Symbol: Exclamation Mark
	Acute toxicity Symbol: Skulls and Crossbones
	Serious health hazard Symbol: Health hazard
	Hazardous to the environment Symbol: Environment

- If any chemical spill occurs causing contact with skin/body/eye please inform a member of staff immediately to avail of first aid assistance.
- Please ensure caps are replaced on all chemicals and left at the end of bench when experiment is completed.

Section 4

4.1 Safety in Research Laboratories

The following rules apply specifically to all staff, demonstrators, undergraduate students and visitors who are authorized to enter and work in the research laboratories of the School.

Authorized access

Access to each research laboratory is strictly limited at all times to those individuals authorised by the appropriate research supervisor. In-case of visiting researchers and new staff the research supervisor is responsible for ensuring that the appropriate safety training is provided, this includes a local lab induction

General Laboratory Practice

- All researchers and staff have a responsibility to maintain a tidy, well organised and safe laboratory environment with a safe means of access and egress.
- Experiments should be designed as fail-safe and detailed assessments of the likely hazards and risks associate with their experimental systems and procedures.
- Research supervisors have a responsibility for ensuring that such systems and procedures meet appropriate safety standards. Research supervisors must keep a written record of risk assessments carried out and a copy lodged with the School Safety Officer. The forms can be found at in *Appendix A*
- A risk assessment must accompany all new pieces of equipment, with the support of local Chief Technical Officer and approved by the Head of School. These risk assessments should be available upon request. All personnel using the equipment must read the risk assessment before use. The risk assessment for this is provided in *Appendix B* and should be revised every two years.
- All researchers have a personal responsibility to make correct use of all personal protective equipment and safety aids provided to minimise risks to themselves or other laboratory users while carrying out experiments or during equipment use.
- Researchers must not undertake any new experimental procedures unless training is provided and inform any local/relevant users of modification to experimental procedures or research equipment.
- When left running unattended over any period of time, all experiments and equipment should have an unattended apparatus form attached stating relevant hazards, contact information and shutdown procedures in-case of emergency. These forms will be made freely available around the laboratory and are available in *Appendix C*
- **Smoking is not permitted in all college buildings. The use of vapes in laboratories is prohibited.**
- Always be vigilant of the need to prevent a fire from occurring in regards to the use of chemicals or electrical equipment (details provided in chemical section). Please make a note of the nearest fire exits so that if a fire breaks out you know how to get out.
- Note the location and method of operation of fire blankets and fire extinguishers. Do not use fire extinguishers unless you have been trained in their use.
- The use of headphones is not permitted in laboratories or offices.

- In some research laboratories, Oxygen Monitor Alarms are present to indicate if low oxygen levels are present in the laboratory. If the alarm sounds **DO NOT ENTER** and inform a member of staff immediately. If the alarm is switched off inform a member of staff immediately so it can be re-calibrated for future use.

The following general precautions apply in all Faculty of STEM labs:

- ✓ Watch where you are going
- ✓ Wear your lab coat;
- ✓ Wear safety glasses when in the laboratory and as advised by the demonstrator;
- ✓ Always wash your hands upon leaving the laboratory;
- ✓ Cuts and abrasions must be covered by a waterproof dressing (in the case of skin rashes, and similar ailments, suitable gloves must be used);
- ✓ Long hair must be tied back;
- ✓ Eating, drinking, smoking or applying cosmetics is prohibited;
- ✓ Wash your hands if you spill reagents or other materials on them;
- ✓ Do not rush or carry sharp items around the laboratory;
- ✓ Do not "act the fool" in a laboratory - it can be very dangerous practice;
- ✓ Accidents caused by tripping, slipping and falling are among the most common of all in laboratories. Never rush about: watch for obstructions left lying on the floor. Avoid cluttering benches, floors and walkways with your personal effects - a bag or bike helmet left on the floor could result in someone else tripping over it;
- ✓ You must never conduct an experiment or a step or procedure unless you know exactly what you are doing and have received the necessary instruction, advice, equipment, safety devices or personal protective equipment. If in any doubt then you should always ask for advice from your instructor or demonstrator or supervisor. Safeguarding your own or others' safety is mainly a matter of using your knowledge to perform the experiment or steps safely and your imagination to anticipate how and where hazards can arise;
- ✓ In the event of a spill and/or a breakage, a person in charge must be informed immediately, even in the case of the most trivial breakages. This must always be done if mercury is spilt, for example, when a thermometer is broken.

Laboratory wastes

Do not place laboratory wastes (chemicals, hazardous biological agents, sharps, radioactive materials, test-tubes, etc.) in the standard domestic-type waste bins.

- Do not discard solid wastes in the sinks and drains.
- Glass (whether broken or not) and other "sharps" (needles, pins, lancets, blades, etc.) must only be disposed of into "sharps" containers specifically identified for this purpose.
- Toxic or dangerous wastes must only be disposed into designated containers.
- Always seek advice if you are uncertain about what to do with your laboratory wastes. The Hazardous Materials Facility, Hazmat@tcd.ie can assist if new waste streams are identified.

Use of general laboratory equipment

Pipette fillers

Mouth pipetting is banned. Place all pipettes upright inside clean test tubes stored in a test tube rack. When pushing a pipette into a pipette filler device, always hold the pipette and the pipette filler as close to the point of junction as possible. Push the pipette in gently so there is no torque generated. Failure to observe proper precautions may lead to serious injury if the pipette snaps and broken glass is rammed into your hands.

The use of glass Pasteur pipettes is generally banned in the Faculty. Plastic Pasteur pipettes should be used whenever possible.

Fume cupboards

Containers found in a fume cupboard must not be removed from it unless this is specifically indicated. Any operations which give off harmful gas, aerosol or vapour must be performed there. Make sure that the fan is on and that the front window of the fume cupboard is no higher than the safe working level (indicated on the fume hood or 50 cm maximum opening). Avoid sudden movements of your hands within the cupboard and of your body outside the cupboard (turbulence must be avoided). The work base of the unit must not be cluttered; otherwise the airflow will not scavenge the toxic vapours. Your work should be conducted over a spill- tray (compatible with any chemical reagent you may be using!).

Use of Personal Protective Equipment (PPE)

You may have to use additional safety equipment such as disposable gloves, face-shields, remote handling devices, screens (to protect against implosion of glassware used in vacuum work), respirators, disposable aprons and overshoes etc., your instructors, demonstrators or supervisors plus your practical manual (or other protocols) must be consulted as appropriate.

Use of glass tubing and other glass apparatus

Cuts and lacerations from broken glass comprise the most frequent injury received whilst working in laboratories. Extra care must be taken - do not rush or use more force than necessary.

Heating liquids in a test tube

This is often the cause of accidents. Before starting the procedure, warn colleagues about the hazard. Eye protection must be worn. Hold the test tube in a wooden "clothes peg" type holder; do not use a metal crucible tongs. A piece of paper folded over several times may also be used. Heat the tube gently without shaking and point it away from yourself and others. Heating sodium hydroxide solution is especially difficult as it tends to bump suddenly. It is wiser to use a boiling chip to prevent such problems.

Common hazards in laboratories

The list of potential hazards that may be present in laboratories is too extensive to print in this manual but fire and electrical hazards are present in all laboratories.

Fire

Smoking is prohibited in all college buildings. Always be conscious of the need to prevent a fire from occurring. Keep flammable solvents away from sources of heat and ignition. Switch electrical equipment off at the socket after use. Be particularly careful not to leave bench lamps or microscope lamps on in close contact with the bench surface - this can lead to scorching and hence to fire. Study the notices which are posted telling you what to do in the event of fire. Note the location of emergency exits so that if a fire breaks out you know how to get out!

Be especially careful when handling highly flammable solvents such as diethyl ether, acetone, petroleum ether, etc. Use only the minimum quantity at the bench and keep the stock container closed and in its fire-proof cabinet when not in use.

Sources of ignition include gas geyser pilot-lights, thermostats on water baths, switches arcing, plug-tops arcing on removal from socket, static discharge from synthetic fibre clothing, as well as naked flames from Bunsen burners. Do not have round-flasks on a bench or shelf exposed to sunlight - the flask may act as a lens and lead to a fire starting on wood or paper in close proximity.

Natural gas burns with a silent and colourless flame so that you may not be aware that a Bunsen burner is lit. Remember that a fully aerated Bunsen flame is invisible in sunlight. Watch out that you do not set fire to your clothing if you come too close to the burner. Matches and/or tapers should not be used to light Bunsens - use a gas lighter so that a smouldering match lying in a waste bin does not subsequently start a fire.

In case of fire, take the following action:

Assess the risk involved in fighting the fire. Undergraduates should NOT attempt to fight a fire; call for help and do as directed by the demonstrator or staff member.

In a beaker/flask - know in advance how to extinguish an experiment based on the chemicals in use. Remove test tube heat source if applicable. Remove oxygen by covering with a suitable cover, Pyrex watch-glass or dish. Do not use water or an extinguisher unless the fire extends beyond the vessel (danger of knocking over vessel).

On the bench or floor - get the nearest fire blanket and cover the fire to exclude air. Do not use water.

On somebody's clothing - push the person onto the ground and smother flames with a fire blanket. If your own clothes catch fire, roll from side to side on the ground until someone helps you.

**Note the location of fire blankets.
Note the operation of fire extinguishers – the correct choice of
appliance is vital. Do not use fire extinguishers unless you have been
trained by College in their use.**

Electricity

Most of the equipment you will be using operates off 220 volts, 50hz/AC Mains supply. Some of the equipment you will operate may be high-voltage apparatus.

You will need to be vigilant in your use of electricity. Disconnect portable equipment from the supply point whilst making changes in so far as is practicable. Do not override safety interlocks designed to protect you from shock.

Get into the habit of approaching electric apparatus, especially new or unfamiliar equipment, in a tentative manner before firmly grasping it or holding onto it.

4.2 Chemical Safety

The Chemicals Safety Act 2008 and 2010 ensures that the use of hazardous chemicals in the workplace is controlled in a safe manner via EU regulations. As a result, the School must:

- Assess the health risks which arises from the hazardous substances in the workplace and to identify and provide effective controls to protect people's health
- Ensure that the controls are properly used and maintained in effective working order
- Provide training and information for those who may be provided
- Monitor exposure and implement health surveillance where necessary
- A copy of the most recent regulations can be found at:

http://www.hsa.ie/eng/Legislation/Acts/Chemicals_Acts_2008_and_2010_and_the_Guide/

As a result the following rules and regulations apply to the use of chemicals in Schools:

- When ordered online all chemicals must be risk assessed and logged via the Research Supervisor and Safety form to ensure correct use and hazard control as shown in Appendix A.
- Upon arrival onsite, ALL chemicals must be logged via the Labcup/ electronic inventory system via the local contact, Technical Officer or Laboratory attendant. Please inform these personnel when a new chemical arrives onsite and allow each one to be registered via the barcoding system. See <https://www.tcd.ie/safetyoffice/lab-safety/LabCup/> for access and registration details.
- This system allows access to the relevant safety data sheets for each chemical which should be read for each chemical before use.
- All work involving chemicals should involve the use of personal protective equipment such as safety goggles, lab coat and safety goggles
- If the chemical requires the use/operation within a fume hood please ensure space is made available for your and/or other people's experiments
- Please ensure all chemicals are stored in the correct shelves/fire-safe presses. i.e. acids and bases should never be mixed.
- All chemicals transferred to a new/other container must be clearly labelled with the name and any relevant hazard symbols associated with its use.

- When left unattended all chemical experiments must be labelled with an unattended apparatus form stating the chemical details, contact details and procedures should it need to be switched off. A copy of these is available in each laboratory or in Appendix C below.
- Any chemical spills must be contained immediately via the Chemical spill kit which are available on each floor. Please inform a member of staff if such a spill occurs so a replacement spill kit can be ordered and disposed of correctly.
- All chemicals must be disposed of via Chlorinated and Non-Chlorinated containers shown below. They can be disposed of via the Hazardous Materials Facility (HMF) in the East End Building near the Lincoln Place gate or TBSI. Container must be not more than two-thirds full when sent to the HMF.
- Acid waste should be disposed of via separate safety containers.
- All broken glass must be disposed of via 'Sharps' bins. This includes contaminated glass, used needles/syringes, scalpels/blades and broken instruments which are sharp.
- Suitable bottle carriers must be used when transporting Winchester and Eurobottle containers in order to prevent accidental spillage or personal injury.
- All cytotoxic waste should be disposed of in a Cytotoxic waste bin. These have a yellow base and purple lid as shown below.
- When a chemical container becomes empty/used up please inform a Technical Officer or Laboratory attendant, so they can be logged off the Labcup system.

For any further relevant information on chemical safety required please contact your local technician or see the college guidelines at <https://www.tcd.ie/safetyoffice/lab-safety/chemical-safety/>

For any chemical safety requirements, ordering details, disposal times and costs please contact your local Technician or the HMF facility at:
<https://www.tcd.ie/hazardousmaterials/>

For further chemical data or regulatory E.U. control measures please see the REACH website at: <https://echa.europa.eu/regulations/reach>

For any local chemical safety concerns or information required please contact the School Chemical Safety Officer Dr. Peter Ó Briain Brien



Chlorinated/Non-Chlorinated Solvent waste can



Chemically contaminated waste can



Clinical Waste bin



Cytotoxic Clinical waste bin



Chemical Spill Kit



Hazardous Liquid Disposal (e.g. Acids)



Silica Column Waste can

- You must always wear a laboratory coat of the 'Howie' style conforming to the NISO specification (1993 or better) as sold in the Students' Union Shop (House 6 Front Square, College or Hamilton Building Shop). Students will not be allowed to attend a practical if they do not have a laboratory coat. This must be worn closed. If your laboratory coat is alight, has an acid spill or microbial contamination, it is best removed from behind by a 'buddy' and then turned inside out.

Note: Lab coat specifications may change in Sophister years and at postgraduate level.

- You must wear a pair of safety spectacles whilst you are in the laboratory. Other procedures (e.g. use of lasers) may require specialised eye protection and it is your responsibility to ensure you are using the correct protection.
- Wearing contact lenses is forbidden. If you wear spectacles, you are recommended to use goggles of the kind which go over ordinary spectacles.
- Remove lab coats and gloves before leaving the laboratory.
- Almost all chemicals are hazardous if used improperly, but some are especially so.
- Very hazardous chemicals include concentrated acids, volatile organic liquids, reproductive toxicity and carcinogens.
- Any spill must be reported immediately.
- Read the Hazard Warning symbols and Risk and Safety Phrases information where provided on stock reagent bottles or containers.
- Obey special handling instructions printed on each bottle or container (see Appendix IV).
- Safety Data Sheets (SDSs) are available, from suppliers or compendiums, for all hazardous chemicals or on LabCup for that chemical. (for example, follow this link to Sigma-Aldrich MSDS System (<http://www.sigmaaldrich.com/safety-center.html>))

The Chemical Hazards sections (<https://www.tcd.ie/safetyoffice/lab-safety/chemical-safety/>) of the College safety website should be consulted for further information

Acid on the skin

Call a demonstrator immediately. Concentrated sulfuric acid - wipe off the bulk of the acid with a cloth and then wash off the acid with a large volume of water from the tap. Place cloth in water immediately. Other acids or alkalis may be washed off directly.

Irritant material in the eye

The injured person should bend forward with the head tilted so that the injured eye is at a lower level. Water from the eye bath is then squirted into the injured eye. Try to persuade the person being treated to open his/her injured eye (severe pain may prevent this). Call the College Emergency number 1999 (or 01-8961999 if using a mobile) and request an ambulance to transport the victim to hospital for evaluation and further treatment.

Chemical substance in the mouth

Wash out the mouth with large quantities of water. Immediately inform the staff member in charge.

4.3 Biological Safety

Work involving the use of biological samples must comply with the Safety Health and Welfare. at Work (Biological Agents) Regulations 2013

(<https://www.tcd.ie/safetyoffice/assets/pdf/Legislation-Biological-Agents.pdf> and [https://www.tcd.ie/safetyoffice/assets/pdf/managing_exposure_to_biological_agents_in_laboratories%20\(1\).pdf](https://www.tcd.ie/safetyoffice/assets/pdf/managing_exposure_to_biological_agents_in_laboratories%20(1).pdf)).

The key requirements of the legislation are to assess the risks associated with the projects involving the use of biological agents. Many biological agents can potentially cause harm to human or animal health. This group may include, but is not restricted to, micro-organisms (including those which have been genetically-modified micro-organisms [GMMs]), cell cultures and endoparasites that may be able to provoke infection, allergy or toxicity in humans or animals.

As a result from this, all personnel whom are in contact/use of biological samples must attend the yearly Biological Safety Workshop and have their supervisor fill in the Biological Agents Personnel Training Record that must be approved by School Safety Officer.

For further information on the specific risk assessment process please see the college guidelines on Biological Safety

<https://www.tcd.ie/safetyoffice/lab-safety/biological-safety/>

4.4 Laser Safety

All research supervisors and persons in charge have a responsibility to ensure that all lasers under their control are entered in the College laser register held by the College Laser Safety Officer and that all new or visiting research staff are registered as designated laser workers and receive the appropriate level of laser safety training before access to laser areas is authorised. All appropriate eye protection should be made available to each user and each user must attend the annual Laser Safety training day.

For details on the next training date, please contact the College Laser Safety Officer, Mr. Christopher Smith at chsmith@tcd.ie Telephone 896 3649 or 3595 or check Blackboard https://tcd.blackboard.com/ultra/courses/_22489_1/cl/outline.

4.5 Radiological Safety

All research supervisors and persons in charge have a responsibility to ensure that all new or visiting research students and staff have received appropriate training and approvals before access is authorised areas containing sources of ionisation radiation. They must contact their local Radiation Protection Supervisor to complete these permissions.

Personnel working in these areas must have completed the online radiation safety training available on the Health and Safety blackboard. Once they have done this, they must attend the next College Training Workshop in Radiological Protection which occurs on an annual basis.

The source of Radiation in the laboratory will be constantly monitored via dosimeters located beside each source. These will be changed and monitored via Technical Officers every two months. The Rad-3 Permit to work form can be found at <https://www.tcd.ie/safetyoffice/lab-safety/radiological-safety/> and must be completed by each user for X-Ray equipment before training/access takes place. The X-Ray laboratory must be kept closed at all times and the key access codes only given to those who have filled in the Rad-3 Permit to Work Form and received relevant equipment training.

For further information and/or accidents/incidents on Radiological Safety please contact your local RPS whose names are available:
<https://www.tcd.ie/safetyoffice/lab-safety/radiological-safety/>

4.6 Compressed Gas Safety

Compressed gas cylinders and from rooftop Nitrogen supply is provided at high pressures and may be flammable and/or toxic so great care must be taken in its storage, handling and use. As a result the Safety Office have issued the following guidelines in regards to the use of compressed gases: <https://www.tcd.ie/safetyoffice/lab-safety/gas-safety/>

Only those who have attended the relevant gas handling courses (<https://www.tcd.ie/safetyoffice/safety-training/compressed-gas-safety-training.php>) may change/move compressed gas bottles including the fitting of regulators when a source becomes empty. Please contact your assigned staff member for that school/unit if you require a cylinder to be changed.

Please adhere to the warning signs located at the entrance to each laboratory indicating the presence of compressed gases within the laboratory and be mindful of their presence.

All staff working in the vicinity of compressed gas must complete the online gas safety course. Sign up can be found here (<https://www.tcd.ie/safetyoffice/safety-training/gas-safety-training.php>)

In the event of a compressed gas leak an oxygen monitor alarm will sound indicating the presence of low levels of Oxygen within the laboratory. **PLEASE DO NOT ENTER THE LABORATORY** and inform a member of staff immediately to assess the situation.

Please ensure all gas sources where practical are switched off before leaving the laboratory. Where they must be left on, ensure an unattended apparatus form is attached indicating the contact details and procedures to take should an experiment need to be switched off.

In the event of the Nitrogen source becoming unavailable via the rooftop supply do not adjust the supply regulator into the laboratory and please contact your assigned staff member for that school/ unit to assess its immediate repair and re-supply.

4.6 Cryogenic Liquid Safety

The most common cryogenic hazard found in the laboratories is liquid Nitrogen (boiling point -196°C). Those wishing to use liquid nitrogen must have attended the online 'Using Liquid Nitrogen Safely' course. To book a place please see: <https://www.tcd.ie/safetyoffice/safety-training/liquidnitrogen.php>

The use and handling of cryogenic liquids necessitates the following rules/guidelines:

- Eye protection and thermal gloves when transferring liquids
- A full risk assessment must be used before carrying out any experiment signed via your Principle Investigator
- Ensure adequate ventilation is available in the laboratory of use before carrying out any experiment in-case of inert gas asphyxiation
- In the event of spill or oxygen monitor alarm sounding please evacuate the laboratory immediately and inform a member of staff to assess the situation.
- No-one may travel in lifts with pressurised dewars containing liquid nitrogen

For further detailed information please see the college cryogenic safety guidelines at:

<https://www.tcd.ie/safetyoffice/lab-safety/cryogen-safety/>

4.7 Dignity and Respect Policy

The Faculty of Science, Technology, Engineering and Mathematics (STEM) is committed to creating an environment where every employee and student is treated with dignity and respect. The College promotes, and is committed to supporting, a collegiate environment for its staff, students and other community members, which is free from discrimination, bullying, sexual harassment excess stress and other forms of harassment. If you feel affected by any of these issues please contact your class representative, research supervisor or line manager directly. Further information can be found here: <https://www.tcd.ie/media/tcd/about/policies/pdfs/hr/dignity-and-respect.pdf>

4.8 General Information/Links

For the College Health and Safety guidelines/advice please see Estates and Facilities: <https://www.tcd.ie/estatesandfacilities/>

For current up to date Health and Safety Guidelines please see The National Health and Safety Authority: <http://www.hsa.ie/eng/>

Illness

If you feel unwell during a lecture or laboratory, inform the academic staff member in charge of the class or your supervisor.

If you feel unwell after the class or your work is over and you seek medical advice, then be sure to mention that you have been working in a laboratory. Your doctor needs to know this so that he or she can arrive at a proper diagnosis.

Accidents and dangerous occurrences (incidents)

All accidents and incidents, however trivial, must be reported immediately to the academic staff member in charge or the School safety officer and will be recorded on an appropriate form by the safety officer in the School or unit where the event took place.

In the case of accident or injury, you may need to take some immediate action, on your own behalf or on behalf of someone else. However, you must never place yourself in danger in an attempt to assist an accident victim. The staff member will, in the event of an injury, ensure that you obtain first-aid treatment in the School/unit, or at the College Health Centre, Ground Floor, Houses 47/52 (phone ext. 1556), or ensure that an ambulance is called and that you are referred to the "on-call" accident hospital.

You should not be taken to hospital by taxi or in a private car.

In the case of referral to the College Health Centre you must be accompanied by a staff member (gender-matched) so that you are under supervision making your way there unless the reason for your ill-health is contagious e.g. suspected COVID-19 case.

Emergency services number

The duty College Security Officer can be reached by dialing extension 1999 or **Ph. 01-896 1999** on all telephones. All requests for emergency services must be made through the duty security officer.

Mental health management

Trinity College plays an active role in supporting positive mental health in the College community. The College provides support, guidance and treatment opportunities to students with mental health problems. A student experiencing symptoms of mental anguish may contact the College Health Service or counselling service and request an appointment. Please see:

<https://www.tcd.ie/collegehealth/mental-health/>

Sports safety

Staff and students are advised to receive proper training and instruction before engaging in sporting activities within College. Training in the use of the weights room is offered by staff of the sports centre.

Personal security

There is a risk of theft of personal belongings in the city centre and in College. Staff and students, therefore, should be alert to this risk. Bicycles should be left locked in designated visible, secure public areas or in any of the College bicycle parks.

4.9 Field courses & fieldwork

The planning and supervision of off-site educational activities should be carefully planned prior to the event. A formal written risk assessment must be carried out in advance and recorded. Students must follow all instructions issued by members of staff.

Personal health & susceptibilities relevant to laboratory and fieldwork

It is up to you to keep yourself fit and healthy while you are in College. Sports facilities and medical facilities are financed from your capitation fees and should be used to best advantage.

If, however, you suffer from any of the following medical conditions:

Colour Blindness	Fainting episodes
Diabetes	Skin Diseases
Epilepsy	Haemophilia
Immunodeficiency	Hearing Disorders
Asthma	Allergies
Balance Disorders	Visual Impairment
You know that you are pregnant	

Then you should:

- Inform your own doctor that you are working in laboratory or undertaking a laboratory based course or fieldwork;
- Inform your tutor (students only);
- Complete the "Confidential Health Survey" through Blackboard;
- Make an early appointment to consult with the College Health Centre (Ext: 1556).

They will advise you of any risks involved and may make certain recommendations to you to ensure that you are not placed in potentially hazardous situations. Arising from this assessment you may need additional supervision, which will be implemented in consultation with you.

If you should become pregnant at any stage in your career in College, then you must consult with the College Health Centre and inform your local safety officer as soon as pregnancy has been confirmed.

Precautions specific to fieldwork

Fieldwork is defined as any practical work carried out by staff or students of the university for the purpose of teaching and / or research in places which are not under university's control, but where the university is responsible for the safety of its staff and students and those exposed to their activities.

Fieldwork should never involve a significant risk to your safety or the safety of others. It is the responsibility of the module coordinator and Head of School to ensure that the risk assessment for all fieldwork is undertaken and to ensure that a safe system of work has been established for all students.

This risk assessment must be undertaken by the module coordinator and signed off by Head of School.

- All students must read and understand their School Safety Statement and fieldwork manuals and must follow all instructions contained therein.
- Students must adhere to all instructions outlined by fieldtrip leaders and demonstrators.
- There is also a duty on the fieldwork participants to take reasonable care for their own safety and that of those affected by their work.
- Staff and students on residential fieldtrips should be aware of the particular risks inherent in spending time in unfamiliar locations, particularly during recreation, and when travelling to and from residential locations. Any behaviour which brings the university into disrepute will be reported to the Junior Dean.
- Those attending overseas fieldtrips must have individual travel insurance. and provide details of such to their course coordinator. Please note that lone working is actively dis-encouraged and is prohibited for undergraduate students. Lone working guidelines are available from the College Safety Office.
- All accidents and incidents in the field must be reported to the fieldtrip leader who will in turn make a formal report. All fieldcourses will have a trained field first responder.
- Students should wear appropriate clothing and footwear suited to the fieldcourse conditions. Those dressed incorrectly or ill prepared may be asked to remain at home. Full information will be given before the field course. Where safety seminars are given prior to residential field courses, attendance is mandatory.

Automatic external defibrillator

Automatic external defibrillators (AEDs) in many areas around campus. A map of those locations can be found at <https://www.tcd.ie/safetyoffice/assets/pdf/AED-Locations-map-2023.pdf>. You are only permitted to deploy an AED if you have been trained in its use. The safety department runs regular courses to train staff in their operation.

Lone working

All students must be supervised by a member of staff whilst engaged in educational activities. Working alone is not allowed under any circumstances.

Study within buildings occupied by members of staff counts as supervision.

Safety equipment

Misuse of any plant or equipment is prohibited. This includes first aid kits, fire extinguishers, fire exits, fire alarm break-glass units or personal protective equipment.

Means of escape from buildings (fire doors, corridors and staircases) must never be obstructed or locked shut.

Severe penalties will be imposed if any fire alarm or escape provision is interfered with.

Additional guidelines

The nature of the Faculty of Science, Technology, Engineering and Mathematics brings students into contact with potentially hazardous chemicals, machinery and equipment. Therefore, Health & Safety rules in these areas are particularly important to maintain a safe working environment. Staff and students in these areas must:

- Read all School laboratory manuals and/or safety manuals as supplied;
- Perform all instructions as directed by members of staff;
- Do not interfere with or misuse any plant, equipment, chemicals, or materials supplied;
- Possess eye protection at all times when working in a science based laboratory for use as appropriate;
- Wear laboratory safety coats at all times when working in a laboratory. The coat must conform to NISO specification 1993, or better ('Howie' type coat with 'popper-type' fasteners, elasticated cuffs and wrap over chest protection); - Though not all labs use these.
- Observe all displayed safety rules;
- Report all defects in plant, equipment and materials to a member of staff;
- Never dispose of any laboratory wastes (chemicals etc.) unless authorised by a member of staff;
- Report any symptoms of ill health immediately to an appropriate member of staff e.g. Supervisor, Course director or the School Safety officer.

4.10 Important Contacts

Title/Function	Present Holder	Email	Telephone
Emergency			01 8961999
Head of Security			01 8962648
Dr Katharine Murray	Head of College Safety	murrayk9@tcd.ie	01 8961914
Dr Mary Mc Donnell	Biological Safety Officer	mmcdonn8@tcd.ie	01 8963965
Hassan Mansaray	Radiological Safety Officer	mansarah@tcd.ie	01 8962887
Cathal Ryan	Fire Safety Officer	cathal.ryan@tcd.ie	01 8963543
Andrew Mc Conville	General Safety Officer	mccconvan@tcd.ie	01 8963539
Mr Christopher Smith	College Specialist Laser Safety	Chris.smith@tcd.ie	01 896 3595
Dr Peter O'Briain Brein	Chemical Safety Officer	Peter.obriain@tcd.ie	01 8961354
Dr David Mc Grath	Director of College Health	dmcgrath@tcd.ie	01 8961556
Dr David Igoe	School of Engineering	igoed@tcd.ie	
Mr David Byrne	School of Genetics and Microbiology (Micro)	byrned@tcd.ie	
Mr Joe Mc Cauley	School of Physics	pmcculey@tcd.ie	
Ms Emma Clancy	School of Mathematics	clanceyem@tcd.ie	
Mr Michael Walsh	School of Computer Science and Statistics	Michael.Walsh@cs.tcd.ie	
Dr Joyce Rubotham	School of Biochemistry and Immunology	rubothj@tcd.ie	
Ms Alison Boyce	School of Natural Sciences	aboyce@tcd.ie	
Dr Audrey Carroll	Biology Teaching Centre	aucarrol@tcd.ie	
Dr Peter O'Briain Brein	School of Chemistry	Peter.obriain@tcd.ie	
Dr Orla O' Callaghan	School of Genetics and Microbiology (Genetics)	odeevy@tcd.ie	

Appendix A

Faculty of Science, Technology, Engineering and Mathematics (STEM) Trinity College, Dublin

General Project Risk Assessment	
Project:	
Reference:	

This form should be completed by the Research Supervisor initiating the project. The assessment is normally valid for the length of the project but must be reviewed annually and supplemented whenever there is a significant change in the nature of the work to be performed.

Name of Research Supervisor worker *	Status	Name of Research	Lab No

***Status:** Undergraduate, New Postgraduate, Postgraduate, Postdoctoral or Visitor (highlight as appropriate).

Project Title:

Give a brief description of the work to be undertaken including the nature of materials and techniques to be used. Is a Standard or a Special COSHH Assessment required?

--

Special Hazards:

- Indicate any **special** hazards associated with the work e.g. from use of biological material especially any of human origin, from use of Category 1 or Category 2 carcinogens (whose **use must be justified**), from use of material of high toxicity or hazardous instability or from any other physical or chemical source.
- If any such hazards are expected, indicate which safety resources within the Faculty of Science, Technology, Engineering and Mathematics (STEM) are to be used to deal with these hazards.
- If no such safety resources exist within the School indicate how the expected hazards are to be dealt with.
- If no special hazards are anticipated write "none" in the box below.

--

Date:	
Review date:	

Appendix B

Faculty of Science, Technology, Engineering and Mathematics (STEM) Trinity College, Dublin

Equipment Risks Assessment General Format		
RA-16-035-1		
Location:		
Equipment/Experiment		
Personnel Exposed:		
Number of People Exposed:		
Materials and Reagents:		
Hazards/Risks	Exposure to solvents	L X M H
	Contact/Inhalation of Dust	L X M H
	Equipment Handling/Use	L X M H
Existing Control Measures before entering laboratory	1. Correct use of all PPE including gloves, dust mask, goggles and laboratory safety coat when handling all materials. 2. Safety data sheets from all solvents and powders to be read via Labcup and/or printout access. 3. All mechanical parts to be securely fastened before starting rotation of Ball Mill via standing operating procedures and correct training 4. When leaving equipment unattended overnight must have an unattended apparatus sheet stating the operator and the chemicals in use as inexperienced users may not be aware of noise level 5. All equipment to be correctly cleaned after use to avoid cross contamination.	

Completed by:

Supervisor:

Issue Date:

Signature:

Signature:

Revision date:

Appendix C

Faculty of Science, Technology, Engineering and Mathematics (STEM) Trinity College, Dublin

UNATTENDED APPARATUS FORM	
Location:	
Description of work:	
Special Hazards:	
Emergency shutdown procedures:	
Name:	
Contact details:	
Date:	

Appendix D

Health and Safety organisation and management in the College and the Faculty of Science, Technology, Engineering and Mathematics (STEM)

The Board of the College determines overall policy on Health and Safety matters through the College Safety Committee and the College Safety Officer (Dr Katherine Murray, West Chapel, Ext. 4000). But at local level the organisation and management is co-ordinated by each Faculty through its own Safety Committee and the Faculty Safety Representative and performed at School level by the Head of School and the School Safety Officers. In addition, the Board has appointed specific hazard officers (Chemical, Biological, Ionizing Radiation, Laser, etc.) who advise it on health/safety aspects of certain major hazard areas.

The Board and each Faculty, School, unit or area publish a 'Safety Statement' under the terms of 'The Safety, Health and Welfare at Work Act, 2005'. In the case of staff the appropriate local safety statements should be read in conjunction with this Faculty Health and Safety Guidance Manual because together they form the basis of the general 'Safety Statement' of this Faculty. Their scope is extended further by reference to individual schools/unit safety advice contained in various regulations, codes of practice, advice notes, briefing sessions, workshops, personal instruction etc., which you may be issued with during the course of this or subsequent years in College.

Legal framework for health and safety matters

The legal general framework for health and safety matters in this country is provided by The Safety, Health and Welfare at Work Act, 2005, and a range of S.15, but note that other specific statutes and regulations have force in the control and regulation of certain hazards and activities (e.g. explosives, psychotropic drugs, ionizing radiation, etc.).

Mandatory health and safety introductory briefing sessions

All new entrants must attend mandatory introductory talks on health and safety practices which are held during the first few weeks of Michaelmas term. Staff and postgraduate students should receive health and safety briefings from their School Safety Officers and supervisors. You must register with your Safety Officer prior to starting active laboratory work.

In the case of students, additional instruction will be given during laboratory sessions early in the term. Take these seriously and learn to develop an attitude of vigilance and hazard awareness when working in laboratories or on fieldwork. If for any reason you miss these sessions, contact the relevant School Safety Officer.

Staff safety representative

A Staff Safety Representative has been elected to look after the interests of all personnel (not students) who work in the Faculty as provided under the 1989 Act. You should feel free to consult with the Safety Representative about any safety concerns. These safety representative as of May 2024 are:

Dr David Igoe Faculty of STEM Safety Representative on University safety committee

Appendix E: Hazard Labelling

Classification			Labelling			
Hazard-		Abbreviation of classification (without H set)	Pictogram, code*	Signal -word	Code* Warning of danger	
Class	Category					Text
Self-reactive substances and mixtures ⁽²⁾ Organic Peroxides ⁽²⁾	Type A	Self-react. A	 GHS01	Danger	H240	Heating may cause an explosion
		Org. Perox. A				
	Type B	Self-react.. B	 GHS01 + GHS02		H241	Heating may cause a fire or explosion
		Org. Perox. B				
	Type C and D	Self-react. C&D	 GHS02	Danger	H242	Heating may cause a fire
		Org. Perox. C&D				
	Type E and F	Self-react. E&F		Warning		
		Org. Perox. E&F				
	Type G	Self-react. G	No Pictogram	No Signal word	-	No hazard statement
		Org. Perox. G				
⁽²⁾ = Two separate hazard classes have the same categories (and are therefore grouped).						
Pyrophoric Liquids	Category 1	Pyr. Liq. 1	 GHS02	Danger	H250	Catches fire spontaneously if exposed to air
Pyrophoric Solids	Category 1	Pyr. Sol. 1				
Self-heating substances and mixtures	Category 1	Self-heat. 1		Danger	H251	Self-heating; may catch fire
	Category 2	Self-heat. 2		Warning	H252	Self-heating in large quantities; may catch fire
Substances or mixtures which in contact with water emit flammable gases	Category 1	Water-react. 1		Danger	H260	In contact with water releases flammable gases which may ignite spontaneously
	Category 2	Water-react. 2		Danger	H261	In contact with water releases flammable gases
	Category 3	Water-react. 3		Warning		
Oxidising Liquids ⁽²⁾	Category 1	Ox. Liq. 1	 GHS03	Danger	H271	May cause fire or explosion; strong oxidiser
		Ox. Sol. 1				
	Category 2	Ox. Liq. 2		Danger	H272	May intensify fire; oxidiser
		Ox. Sol. 2				
	Category 3	Ox. Liq. 3		Warning		
		Ox. Sol. 3				
⁽²⁾ = Two separate hazard classes have the same categories (and are therefore grouped).						
Corrosive to metals	Category 1	Met. Corr. 1	 GHS05	Warning	H290	May be corrosive to metals



CLP Regulation (EC) No. 1272 / 2008

on the classification, labelling and packaging of substances and mixtures



Rev.0, October 2010

Classification			Labelling			
Hazard-		Abbreviation of classification (without H set)	Pictogram, code*	Signal -word	Code* Warning of danger	
Class	Category					Text
Explosives	Unstable explosive	Unst. Expl.	 GHS01		H200	Unstable explosive
	Division 1.1	Expl. 1.1			H201	Explosive; mass explosion hazard
	Division 1.2	Expl. 1.2			H202	Explosive; severe projection hazard
	Division 1.3	Expl. 1.3			H203	Explosive; fire, blast or projection hazard
	Division 1.4	Expl. 1.4	No Pictogram	Warning	H204	Fire or projection hazard
	Division 1.5	Expl. 1.5		Danger	H205	May mass explode in fire
	Division 1.6	Expl. 1.6		-	-	No hazard statement
Flammable Gases	Category 1	Flam. Gas 1	 GHS02	Danger	H220	Extremely flammable gas
	Category 2	Flam. Gas 2	No Pictogram	Warning	H221	Flammable gas
Flammable Aerosols	Category 1	Flam. Aerosol 1	 GHS02	Danger	H222	Extremely flammable aerosol
	Category 2	Flam. Aerosol 2		Warning	H223	Flammable aerosol
Oxidising Gases	Category 1	Ox. Gas 1	 GHS03	Danger	H270	May cause or intensify fire; oxidiser
Gases under Pressure ⁽¹⁾	Compressed gas	Press. Gas	 GHS04	Warning	H280	Contains gas under pressure; may explode if heated
	Liquefied gas					
	Refrigerated liquefied gas				H281	Contains refrigerated gas; may cause cryogenic burns or injury.
	Dissolved gas				H280	Contains gas under pressure; may explode if heated
⁽¹⁾ = The hazard class "Gases under Pressure" is subdivided into 'Groups' (not 'Categories')						
Flammable Liquids	Category 1	Flam. Liq. 1	 GHS02	Danger	H224	Extremely flammable liquid and vapour
	Category 2	Flam. Liq. 2			H225	Highly flammable liquid and vapour
	Category 3	Flam. Liq. 3		Warning	H226	Flammable liquid and vapour
Flammable Solids	Category 1	Flam. Sol. 1	GHS02	Danger	H228	Flammable solid
	Category 2	Flam. Sol. 2		Warning		

Classification			Labelling			
Hazard-		Abbreviation of classification (without H set)	Pictogram, code*	Signal -word	Code* Warning of danger	
Class	Category					Text
Acute Toxicity	Category 1	Acute Tox. 1	 GHS06	Danger	H300 H310 H330	Fatal if swallowed Fatal in contact with skin Fatal if inhaled
	Category 2	Acute Tox. 2			H301 H311 H331	Toxic if swallowed Toxic in contact with skin Toxic if inhaled
	Category 3	Acute Tox. 3				
	Category 4	Acute Tox. 4	 GHS07	Warning	H302 H312 H332	Harmful if swallowed Harmful in contact with skin Harmful if inhaled
Skin corrosion / irritation	Category 1A	Skin Corr. 1A	 GHS05	Danger	H314	Causes severe skin burns and eye damage
	Category 1B	Skin Corr. 1B				
	Category 1C	Skin Corr. 1C				
	Category 2	Skin Irr. 2	 GHS07	Warning	H315	Causes skin irritation
Serious eye damage / eye irritation	Category 1	Eye Dam. 1	 GHS05	Danger	H318	Causes serious eye damage
	Category 2	Eye Irr. 2	 GHS07	Warning	H319	Causes serious eye irritation
Sensitisation of the respiratory tract or the skin	Respiratory Sensitisers Category 1	Resp. Sens. 1	 GHS08	Danger	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
	Skin Sensitisers Category 1	Skin. Sens. 1	 GHS07	Warning	H317	May cause an allergic skin reaction

Classification			Labelling			
Hazard-		Abbreviation of classification (without H set)	Pictogram, code*	Signal -word	Code* Warning of danger	
Class	Category					Text
Germ cell mutagenicity	Category 1A	Muta. 1A	 GHS08	Danger	H340	May cause genetic defects ⁽³⁾
	Category 1B	Muta. 1B		Warning	H341	Suspected of causing genetic defects ⁽³⁾
	Category 2	Muta. 2				
Carcinogenicity	Category 1A	Carc. 1A		Danger	H350	May cause cancer ⁽³⁾
	Category 1B	Carc. 1B			H350i	May cause cancer when inhaled
	Category 2	Carc. 2		Warning	H351	Suspected of causing cancer ⁽³⁾
(3) = State route of exposure if it is conclusively proven that no other routes of exposure cause the hazard.						
Reproductive toxicity	Category 1A	Repr. 1A	 GHS08	Danger	H360 ⁽⁴⁾	May damage fertility or the unborn child.
	Category 1B	Repr. 1B			H360F ⁽⁵⁾	May damage fertility.
					H360D ⁽⁵⁾	May damage the unborn child
					H360FD ⁽⁵⁾	May damage fertility. May damage the unborn child.
					H360Fd ⁽⁵⁾	May damage fertility. Suspected of damaging the unborn child.
	H360Df ⁽⁵⁾	May damage the unborn child. Suspected of damaging fertility.				
Category 2	Repr. 2	Warning	H361 ⁽⁴⁾	Suspected of damaging fertility or the unborn child.		
Additional category for effects on or via lactation	Lact.		H361f ⁽⁵⁾	Suspected of damaging fertility.		
		H361d ⁽⁵⁾	Suspected of damaging the unborn child.			
		H361fd ⁽⁵⁾	Suspected of damaging fertility. Suspected of damaging the unborn child.			
		No Pictogram	No Signal Word	H362	May cause harm to breast-fed children.	
(4) = (state specific effect if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard) (5) F = Fertility, D= Development (lowercase f, d = suspected effect)						
Specific target organ toxicity (single exposure)	Category 1	STOT SE 1	 GHS08	Danger	H370	Causes damage to organs ^(6,7)
	Category 2	STOT SE 2		Warning	H371	May cause damage to organs ^(6,7)
	Category 3	STOT SE 3	 GHS07	Warning	H335	May cause respiratory irritation
					H336	May cause drowsiness or dizziness
Specific target organ toxicity (repeated exposure)	Category 1	STOT RE 1	 GHS08	Danger	H372	Causes damage to organs ⁽⁶⁾ through prolonged or repeated exposure ⁽⁷⁾
	Category 2	STOT RE 2		Warning	H373	May cause damage to organs ⁽⁶⁾ through prolonged or repeated exposure ⁽⁷⁾
(6) = (state all organs affected, if known) (7) = (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)						

Classification			Labelling			
Hazard-		Abbreviation of classification (without H set)	Pictogram, code*	Signal-word	Code* Warning of danger	
Class	Category					Text
Aspiration Toxicity	Category I	Asp. Tox. I	 GHS08	Danger	H304	May be fatal if swallowed and enters airways
Hazardous to the aquatic environment	Acute Category I	Aquatic Acute I	 GHS09	Warning	H400	Very toxic to aquatic life
	Chronic Category I	Aquatic Chronic I			H410	Very toxic to aquatic life with long lasting effects
	Chronic Category 2	Aquatic Chronic 2		No Signal Word	H411	Toxic to aquatic life with long lasting effects
	Chronic Category 3	Aquatic Chronic 3	No Pictogram	No Signal Word	H412	Harmful to aquatic life with long lasting effects
	Chronic Category 4	Aquatic Chronic 4			H413	May cause long lasting harmful effects to aquatic life

ADDITIONAL EU HAZARD CLASS
The warning of danger and the signal word included in the section for additional information can be found on the label.

Hazardous to the ozone layer		Ozone	No Pictogram	Danger	EUH059	Hazardous to the Ozone Layer
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* = The Code for the Pictogram and the H-statement do not need to be included on the label.

Classification and Labelling is a set of criteria and rules used to determine if a chemical can cause harm to human health and the environment. It involves the identification and evaluation of the physical properties of a chemical, along with its health and environmental effects and then communicating those hazards via a label.

The CLP Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures entered into force on the 20th January 2009 and is direct acting in all European Member States. It has a phased transitional period, firstly for substances and then for mixtures, being the 1st December 2010 and then the 1st June 2015, respectively. These are extended to 1st December 2012 and 1st June 2017 if the substance or mixture is already "on the shelf".

CLP introduces the United Nations GHS into Europe and it amends and will eventually replace the existing European Directives 67/548/EEC for substances and Directive

1999/45/EC for preparations. These are transposed in Ireland by Statutory Instruments S.I. No 116 of 2003 (for substances) and S.I. No 62 of 2004 (for preparations), as amended.

The Competent Authorities in Ireland for the CLP Regulation are the Health and Safety Authority, for industrial chemicals, and the Pesticides Control Service Division of the Department of Agriculture Fisheries and Food for plant protection products and biocides. There is a CLP Helpdesk established to assist industry to meet their obligation under CLP.

Further sources of information. assistance and guidance can be found at the following:

HSA website www.hsa.ie/clp

CLP Helpdesk email clp@hsa.ie Telephone 1890 289 389

ECHA website http://echa.europa.eu/clp_en.asp

The content of this poster is subject to change as a result of adaptations to technical progress to the CLP Regulation please check the HSA and ECHA websites for updates. The HSA wish to acknowledge and thank the German Competent Authority, BAUA who provided the information on which this poster is based.

