

All Staff & Students SAFETY HANDBOOK

Departmental Arrangements for Health, Safety and Security

2023/2024

EMERGENCIES

In case of ACCIDENT or FIRE

DIAL 222

AT ANY TIME, ON ANY INTERNAL TELEPHONE
OR **020 7679 2222** ON EXTERNAL PHONES
INCLUDING MS TEAMS

Emergency Instructions for UCL Department of Chemical Engineering

IN THE EVENT OF THE OUTBREAK OF FIRE

On discovering a fire – operate the nearest fire alarm call point.

Phone 222* – clearly state your location and phone number.

Leave the building immediately via the safest designated route.

IN THE EVENT OF THE FIRE ALARM SOUNDING

Leave the building immediately via the safest designated route.

Ensure any persons under your supervision also leave immediately.

Go to the assembly point marked on the fire instruction notices.

IN THE EVENT OF AN EMERGENCY OR A SERIOUS ACCIDENT

Phone 222* – clearly state your location, phone number.

Identify yourself as a First Aider (if applicable).

Clearly describe the nature of the emergency.

**If the emergency is due to a toxic release, leave the area immediately,
closing doors behind you, before phoning.**

In the event of injury, obtain assistance from the nearest qualified first aider – See Section [6.3](#)

MINOR INCIDENTS INVOLVING INJURY

Obtain assistance from the nearest qualified first aider – dial **07007 from an internal phone or **020 8138 7007** from an external phone.**

FIRST AIDER NAMES ARE DISPLAYED BY FIRST AID BOXES AND IN THIS BOOKLET IN SECTION [6.3](#)

**If a Departmental First Aider is not readily available, dial 222* to ask for a first aider to attend
from UCL Security.**

For minor injuries, the patient may be escorted to UCLH Accident and Emergency Department.

**222 on any internal telephone or 020 7679 2222 on Microsoft Teams or external phones.*

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1. STATEMENT OF SAFETY POLICY

- 1 The policy of the Department is to promote, through active management of its hazards and activities, the safety, health and welfare of all its staff, students*, visitors, contractors and members of the public on the Department's premises and engaged with departmental activities off premises, to protect them from any adverse effect on their health and safety arising from the activities of the Department.
- 2 The Department seeks continual improvement of its occupational health and safety systems through processes of measurement and review in order to achieve or maintain best practice standards.
- 3 The Department agrees to commit to and implement the [UCL Health and Safety Policy](#).

**In this document, the term student applies to undergraduate (UG, including MEng), postgraduate-taught (PGT i.e. MSc and postgraduate-research (PGR i.e. PhD) students.*

Commitment and leadership by the Head of Department and senior Departmental management

- 4 The Department recognises the importance of establishing clear lines of management accountability for controlling the risks of its work activities and these are set out in [Section 5.1](#).
- 5 The Department recognises that commitment and involvement by senior managers plays a significant part in promoting health and safety in the Department.
- 6 The Department will ensure that staff and students are kept informed of matters which may affect their health and safety including the dissemination of this Policy Statement.
- 7 Senior Departmental management will take the lead in consulting with staff, safety representatives and students on matters of health and safety and will seek their involvement in the development and improvement of safety in the Department.
- 8 The Department will ensure that health and safety considerations are integrated into the planning of Departmental work activities.
- 9 The Department will consider its overall health and safety policy in parallel with other corporate policies that are designed to promote the wellbeing of staff and students such as policies on equal opportunity, harassment and bullying, disability, age and racial discrimination.

1.1 ORGANISATION

Managers within the Department have responsibility for ensuring the management of health and safety. Safety Officers have responsibility for monitoring the implementation of the Health and Safety policy and reporting their findings to the Head of Department.

The following have Health and Safety responsibilities in the Department:

Roberts Building, South Wing Wilkins Building, 40 Bernard Street and Marshgate Building

The Department is organised into 1 unit. Below are the details of that unit.

Head of Department and Safety Committee Chair
Departmental Safety Officer
Deputy Departmental Safety Officers

Prof E. Sorensen
Ms N. Burnham
Miss A. Shah
Dr Rosalie Hamill

UCL Lead Safety Adviser (LSA)

The following Safety Services representative is the primary Lead Safety Adviser assigned to the Department.

Debbie Allen debbie.allen@ucl.ac.uk

Ext. 52507, Mob. 07827 791 988

UCL Head of Security

Mark West mbwest@ucl.ac.uk

020 7679 3343

1.2 AUTHORISATION

The safety and security policy for the Department of Chemical Engineering and the organisation and arrangements for implementing it, as set out in this document, have the authority of the Head of Department, who is responsible for ensuring its implementation.

Professor Eva Sorensen
Head of Department



Date: 3 January 2024

Reviewed: 2024

FURTHER ADVICE AND INFORMATION

UCL Safety website: <https://www.ucl.ac.uk/safety/services/>

Chem Eng Safety website: <https://www.ucl.ac.uk/chemical-engineering/about/safety-and-security-0>

UCL Security website: <https://www.ucl.ac.uk/estates/ourservices/securityucl>

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

1.3 COOPERATION IN SHARED WORK AREAS

Introduction

In situations where Chemical Engineering staff or students are working in another department; or visitors, temporary staff, or contractors are working in the Department, lines of responsibility for safety should be made clear. There should be no confusion as to whose safety arrangements are to be followed. Anyone working in Departmental spaces should abide by the rules and arrangements for safety, both those set out in this Handbook and any other special operating procedures for particular work. Laboratory managers are responsible for instructing all staff in any special operating procedures which may apply to their work.

It is the responsibility of all staff to provide information regarding any work carried out by themselves, or their students from other departments or organisations, and of their visitors and guests who are working in the department, to the DSO or DDSO via the Shared Workplace form (see the [Safety Website](#)).

Cooperation at the building level

The Roberts Building is shared with several other departments. A coordinated approach to building fire evacuation among the departments is arranged by meetings of the Department Senior Fire Evacuation Marshals under the Area/ Building Senior Fire Evacuation Marshal.

Staff and students are asked to report building and facilities faults and issues (e.g. unattended spills, broken doors, faulty lights) to the department safety team so that the problem can be resolved quickly. If the problem is creating a hazard this should be reported as soon as possible by the staff member or student who spotted it on [RiskNet](#).

Staff or students working in other departments/ organisations

If a member of the Department is working elsewhere at UCL or in another organisation, they should work according to the safety rules and guidelines of the host department or organisation. If these are not made clear, please contact the Departmental Safety Officer of the host department.

Visitors and Staff from other UCL departments or organisations

Staff, students and visitors from other UCL departments or organisations must work under the safety rules and guidelines of the Chemical Engineering Department. It is the responsibility of the member of staff who has invited the visitor to ensure that the visitor has been informed of the relevant safety arrangements, but they can delegate this task to another responsible and competent person if appropriate. Service engineers and other contractors whose presence in the Department is at the direct invitation of a member of staff also fall into this category. Such individuals may spend some time working alone so should be given safety instruction on fire evacuation procedures, how to contact a first aider, and how to raise the alarm in the event of a fire.

Contractors in Chemical Engineering

UCL and external contractors carrying out maintenance or refurbishment in the Department must work under the safety rules and guidelines of the Department. It is the responsibility of the UCL Project Officer to ensure that the contractors have been given the relevant information.

Outreach Activities

Visitors in the Department from outreach activities, such as summer schools or work shadowing, must abide by the rules and guidelines of the Department. An itinerary and risk assessment must be in place before any activities takes place. There should be one point of contact as the outreach organiser, referred to as the Work Organiser. This Work Organiser in the Department must liaise with the school/ sixth form/ college to ensure both the itinerary and risk assessment are complete and distributed to all involved in the visit. This cannot be delegated to the DSO/DDSO, Facilities Manager, or Safeguarding Officer.

Where the external students may have the potential to work in close proximity or alone with researchers and staff, please refer to [Section 2.1.10](#).

2 GENERAL PROCEDURES

2.1 SAFETY IN THE DEPARTMENT OF CHEMICAL ENGINEERING

The Department is generally a safe place in which to work. This is not because it is free from danger, but because control measures are put in place to minimise the risks associated with the hazards present. You may cause an accident if you do not observe the correct procedures or fail to develop safe working practices.

This section of the Handbook is designed to help you work safely. Safe working practices change. What is considered safe today may not be acceptable in the future. The perception of acceptable risk changes and new knowledge affects working practices.

You are required to follow these rules. Irresponsible activity will be considered as a serious breach of conduct and may lead to disciplinary action. Even though you may not be concerned immediately with them, read ALL the following sections carefully.

2.1.1 Fire evacuation procedure

Keep corridors and fire exits clear. Good housekeeping is an important first rule. All walkways should be kept clear of obstructions.

If you discover a fire:

1. Activate the fire alarm
2. Dial 222 from an internal phone or 0207 679 2222 from a mobile (this number is printed on the back of your ID card), or Use Microsoft Teams or the UCL SafeZone App.
3. Evacuate and close any doors and windows (if there is time to do so) on your way out.
4. Leave the premises by the nearest escape exit or staircase which is free from smoke. DO NOT USE THE LIFTS. If you have a Personal Emergency Evacuation Plan (PEEP) in place, you must follow this prearranged plan to leave the building.
5. Go to the Designated assembly point which are located:
 - a. For Roberts Building outside the Print Room Café, in the South Junction
 - b. For the Main Quad Popup Lab and the South wing Building. The assembly point is Main Quadrangle (in front. of the Slade North Wing)
 - c. For 40 Bernard Street – Marchmont Street
 - d. For Marshgate – Grass to the South of Building

If you have been trained to use fire extinguishers, and you feel confident using one and the fire is small, use the appropriate fire extinguisher/ fire blanket. If it is an electrical fire, switch off power to prevent reinitiation.

If the fire alarm sounds:

1. You must evacuate immediately upon hearing the fire alarm. Follow steps 3 to 5 listed above.

Fire Marshals have been appointed on each floor. Their main duties are:

- Retrieve their designated baton and ensure as far as possible, taking due regard to their own safety, that all personnel in their area leave the building speedily and safely.
- After leaving the building to report to the Senior Fire Evacuation Marshal whether their area is clear or not.

A full list of the fire marshals, and the areas they marshal, is given in [Section 6.2](#).

2.1.2 Accident and incident reporting

All accidents, near misses, and hazard observations must be reported on RiskNet, either via the [website](#) or the [Inside UCL app](#) (for staff).

Any accident or incident, including near misses, whether or not there are apparent injuries, must be reported. The incident form must be completed as soon as possible (note: anyone can report an accident, not just the injured party and the report can be filed anonymously if you wish). Under the [Reporting of Injuries Diseases and Dangerous Occurrences Regulations \(RIDDOR\) 2013](#), certain incidents must be reported to the Health and Safety Executive within a particular timeframe. This will be done by UCL Safety Services.

2.1.3 Out of Hours Working

Outside of normal working hours there are likely to be no departmental first aiders available, and in the event of a fire rooms will not be checked by fire marshals. UCL Security usually only have one member of staff in the building who will often be patrolling away from the front desk. Should you have an accident and become incapacitated you may not be found until the next working day. If you are trapped in the building by smoke or fire and UCL Security is not aware you are there nobody will come to rescue you. The risk of attack within the building out of normal hours is also much higher. Walking to or from work late at night or early in the morning increases the chance of being attacked in the streets. The above risks apply equally to students and staff. For these reasons, out of hours working should be avoided; especially late-night working and working at weekends.

Normal working hours in the Department:

- 8:00 am to 7:00 pm Monday to Friday excluding UCL closures.

Extended working hours in the Department:

- 7:00 am to 8:00 am and 7:00 pm to 9:00 pm Monday to Friday,
- 9:00am to 7:00 pm on Saturday, Sunday, and bank holiday closures.

Access to the Department during college closures at Easter and Christmas is not permitted.

Staff and postgraduate researchers who have completed all mandatory safety training may do office work (no access to labs without additional permission) during extended working hours.

Working in an office during extended hours is subject to the following conditions:

- If you are working in the Robert's Building, you must sign in and sign out using the book at Roberts Reception. If you start working before normal working hours, you need to sign in at the reception desk and then sign out when you finally leave the building.
- Do not roam around the building.
- If you have a mobile phone, keep it with you and switched on.
- If you have a smartphone, you are encouraged to download and use the personal safety [SafeZone app](#).
- All emergencies should be reported by dialling the emergency number given on page one of this document.

Working in a lab outside of normal working hours requires the additional procedure below:

- Request permission using the Out of Hours form, located on the [Safety Website](#), at the latest by Wednesday 5pm before the extended hours requested. There are two stages of permission, first the supervisor in charge of the work, then the Head of Department (HoD) or their representative if away.

- There must be a second person (co-researcher) in the same or adjacent room (within shouting distance) with the researcher conducting the experiment. No lone lab work is permitted outside normal hours. The second person must be a member of the Department (PGR student or member of staff) who have completed all mandatory safety training and is aware of the safety aspects of the undergoing experiment.
- A full risk assessment of the proposed experiment, which covers the additional risks of working out of hours must be submitted on [RiskNET](#) and authorised by the supervisor. Note that if the experiment changes to an extent that the risks change then the original assessment is no longer valid, and a new assessment must be prepared and authorised to continue working.
- For urgent out of hours work where there is a danger of hazards or significant loss of experimental data, please call the supervisor responsible for the work to request permission at least 2 hours before. If the supervisor does not respond, the work must not go ahead.

If supervisors (an inclusive term to describe all those who have a duty to manage any aspect of the work activity of the Department, whether carried out by staff or students) do not wish particular students to work during extended hours because they feel they are not yet experienced enough, they should inform the DSO and the student of this. Out of hours working is not a right and students should not expect that they can come in to work whenever they wish.

Requests to work in any Departmental buildings which are not covered by the above system will be considered by the DSO and HoD on a case-by-case basis.

Adherence to this system will be monitored through cross-checking access card records against permits, risk assessments, and training records. If any members of staff or students are found to be accessing the building without following the correct procedure (e.g. working in labs after 7:00 pm without an authorised risk assessment or doing different lab work to that covered in the assessment, or are present in the department beyond the permitted hours) they will be prevented from entering the building outside of normal working hours and further disciplinary action may be taken at the discretion of the HoD.

Undergraduate students are only permitted to be in the department from 9:00 am to 7:00 pm Monday to Friday during agreed allocated time slots (see [Section 2.1.9](#)) and must be supervised at all times in labs.

MSc students are permitted to work onsite during the extended hours providing they have completed all the necessary safety training and requirements, and the work they are carrying out is low risk.

First Aid Cover

During out of hours, first aid cover is provided by UCL Security who are all trained first aiders. In case of an emergency requiring first aid, call ext. 222 or 0207 679 2222 from a mobile (this number is printed on the back of your ID card) stating location and nature of injury. The First Aid function on the SafeZone app can be used as an alternative to calling for first aid assistance.

2.1.4 Lone Working

Lone working is defined as working while remote from colleagues, i.e. colleagues may be in the next room, on other floors in the same building, or other people may be present who are not work colleagues. Lone workers can be peripatetic working between different locations or in fixed locations during normal working hours or out of hours.

Risks associated with working alone:

- Unable to summon help due to injury, ill health, or an emergency.

- Unable to carry out a task safely while alone.

Individual vulnerabilities

Specific individuals may be subjected to increased risk when working alone:

- Some medical conditions make sufferers unsuitable for lone working. Managers who have concerns about a staff member's fitness for lone working should refer them to Occupational Health after completion of the '[Safety Critical Health Assessment form](#)'. UG/PGT and PGR students who raise concerns should be referred to their departmental tutor and graduate tutor respectively.
- Inexperienced workers.
- Individuals with impaired vision, hearing or mobility.

Managers must ensure that:

- High risk activities are never carried out by a lone worker under any circumstances.
- Regular lone working is avoided wherever possible.
- All lone working is planned and covered in a risk assessment.
- Risk assessments for the work under their control indicate the additional control measures required if the work is carried out while alone.
- Measures to control risk while working alone are implemented.
- The lone worker understands the risks and precautions involved in their work, i.e. has enough experience and training to work without direct supervision.
- The lone worker has information to deal with emergencies.
- The lone worker is familiar with the area and/ or building they are working in and therefore know what to do in the event of an emergency.

Managers should consider one or more of the following controls depending on the level of risk:

- A start/finish time has been agreed for out of hours lone working.
- The lone worker informs their supervisor that work has started / finished.
- Periodic checks by the supervisor or person designated by the supervisor are made at agreed intervals e.g. hourly. Checks can be in person, by telephone (mobile or landline), or two-way radio. N.B. ensure the means of communication works in the work location, e.g. mobile phone reception is not universal.
- A procedure is in place to deal with failure to contact the lone worker at agreed intervals.
- A record is kept of the information that has been provided to individuals who work alone.

N.B. The SafeZone app can be used by staff and students to check-in with UCL Security whilst lone working. If a lone worker fails to check in at the prearranged time, security staff and the lone worker's supervisor will instigate the pre-agreed protocol to check on the individual. Since the app uses a Wi-Fi signal it may be more reliable than depending on mobile phones.

Managers must review the risk assessment periodically:

- At intervals determined by the risk assessment e.g. every 12 months or sooner.
- After an accident or incident relating to the work.
- If something changes, e.g. people, equipment, or location: e.g.
 - Is it still necessary for the work to be conducted alone?
 - Is the worker still medically fit to work alone?

2.1.5 Prohibited Lone Working Activities

- Use of explosive substances or those that emit toxic gases.
- Working in confined spaces.
- Working with exposed live electrical sources.

- Lifting heavy loads.
- Using highly toxic compounds.
- Large quantity cryogenic decanting.
- Using unguarded power tools.
- Working with individuals under 18 years of age without a valid DBS certificate.

2.1.6 Competence

To work with hazards unsupervised, competence with the hazard must be determined by the supervisor of the person carrying out the work. The supervisor must then make a record of evidence of competency; this can be a certificate from a training course or a completed competency assessment checklist. Details on what the minimum standards are can be found in the generic high hazard risk assessment: RA044624. This risk assessment details the minimum expectations. More training or monitoring may be required if determined by the supervisor and the supervisor can determine that a direct report is not competent to work with specific hazards. Details on what is considered competent in a specific activity must also be included in individual project risk assessments.

2.1.7 Off-site Working

Offsite working is defined as any teaching, research, or work activity carried out by UCL staff, students, or visiting research workers on behalf of UCL in places or premises that are not rented or owned by UCL and over which UCL does not exert direct management control. This includes work such as, meetings and conferences, hosted research, and field work and can take place at other institutions or locations in the UK or abroad.

Meetings and Conferences

A suitable [risk assessment](#) and travel [itinerary](#) must be sent to the offsite work coordinator if the work is taking place abroad. The itinerary must include:

- The participant's name
- The supervisor's name
- The accommodation address, if applicable
- Any travel arrangements
- UCL travel insurance details (if travel is involved)
- Emergency contact details, e.g. for next of kind.

Hosted Research

Hosted research is defined as visits or placements to a host institution, i.e. other universities or academic institutions, in the UK or abroad, to carry out research using their facilities in collaboration with or with the cooperation of the host organisation. A risk assessment must be completed before work takes place and must include any additional hazards at the host organisation (e.g. chemical). Any safety training/ documentation required by the host research facility should also be completed before carrying out any research. An itinerary must be sent to the offsite work coordinator. The itinerary must include:

- The participants' names
- The supervisor's name
- The name and contact details of the host at the host institution
- The accommodation address, if applicable
- Any travel arrangements
- UCL travel insurance details (if travel is involved)
- Emergency contact details, e.g. for next of kind.

An example of an itinerary can be found [here](#).

If the participants are performing radiation work, they will in addition to the above also need to report:

- Detail the work including the likely radiation exposure.
- Detail the local rules and radiation risk assessment the UCL employee will be working to, including the Radiation Protection Supervisor details.
- Detail the arrangements for dosimetry. If dosimetry is necessary, the UCL employee should be issued dosimetry (either passive or electronic) by the host organisation. The host organisation should forward the results to the Radiation Protection Officer (RPO).

Insurance

Equipment may need to be insured before travel. To do this, send an email to June Campbell (june.campbell@ucl.ac.uk | Insurance Manager | Finance & Business Affairs) with the details of the equipment in good time before travel.

Travel insurance will also need to be arranged as outlined above. Travel insurance details and to register a trip, visit [UCL travel insurance](#).

2.1.8 UCL Essential Safety Training

The table below shows the essential training requirements for all staff, in addition to training requirements of staff & students working in laboratories with certain substances.

- All staff and research (PGR) students must attend a Local Fire Safety Induction, in addition to the UCL Fire Safety and UCL Safety Induction courses **on their first day of work**.
- All staff and research (PGR) students must repeat the Local Fire Safety Induction if their main workplace moves (e.g. to a different floor or building).
- Copies of all safety training records should be sent to the DSO. Local Fire Safety inductions are normally carried out by line managers or area safety representatives.
- Refresher training may be required where the activity has not been performed in six months.
- The Department of Chemical Engineering safety training courses expire after three years.
- The UCL courses for Fire Safety and Safety Induction must currently be repeated annually.

Mandatory training for all staff; Mandatory training for either office or lab-based staff / and students; Mandatory training for lab-based staff and students; Specific mandatory training.

ROLE	COURSE	SOURCE
All Staff and PGR Students	Local Fire Safety	Guided Tour Manager/Area Safety Rep (refreshed every two years)
	UCL Fire Safety	UCL LearnUpon
	UCL Safety Induction	UCL LearnUpon
Then EITHER Lab OR Office Safety in Chemical Engineering		
Office-based Staff and PGR Students	Office Safety in Chemical Engineering	Moodle (Code: UCLChemEng)
Lab-based Staff and PGR Students	Laboratory Safety in Chemical Engineering	Moodle (Code: UCLChemEng)
Additional Mandatory Training for Lab-based Staff and PGR Students		

All Lab-based Staff and PGR Students	Local Laboratory Induction	Guided Tour Manager/Area Safety Rep
Lab-based PGR and PGT Students	Lab Risk Assessment Workshop	Departmental Workshop
	Principles of Risk Assessment	UCL LearnUpon
Additional Specific Training		
Compressed Gas Users	Pressure Safety	Departmental Lecture Moodle (Code: CECG)
	Using Gas Cylinders Safely within Universities	eLearning provided by Gas Safe Consultants
	Connecting regulators and safe cylinder setup training	Instructor Lead Course
Liquid Nitrogen Users	Safe Decanting of Liquid Nitrogen	Instructor Lead Course
	Using Liquid Nitrogen Safely Within Universities	eLearning provided by Gas Safe Consultants
Radioactive Material Users	Safe Handling of Unsealed Radioactive Sources	Instructor Lead Course
	Principles of Radiation Safety	UCL LearnUpon
X-ray Users	Safe Use of X-rays	UCL LearnUpon
X-ray Managers	Management of X-rays	UCL LearnUpon
Laser Users	Laser Safety Awareness	UCL LearnUpon
Fire Evacuation Marshals	Fire Evacuation Marshal (FEM) Training	UCL LearnUpon
	Safe Use of Fire Extinguishers	Instructor Lead Course

More available training is listed on the UCL Safety Services training page below. If you feel you have additional training requirements, speak to your supervisor or area safety representative and arrange via the [staff training system](#).

2.1.9 PGT and UG Supervision

All PGT and Year 4 UG students must complete the following courses:

- Local Fire Induction (Guided Tour Manager/Area Safety Rep)
- Fire Safety ([UCL LearnUpon](#))
- UCL Safety Induction ([UCL LearnUpon](#))
- Either:
 - o Chem Eng Laboratory Safety ([Moodle](#)) Code: UCLChemEng
- OR**
- o Chem Eng Office Safety ([Moodle](#)) Code: UCLChemEng

Additional mandatory courses for lab-based PGT/UG students:

- Principles of Risk Assessment (UCL Staff Learning Portfolio)
- Risk Assessment Workshop (Departmental Lecture).

Those not completing these courses will not be permitted to work in a lab.

- Training certificates should be sent to chemeng.safety@ucl.ac.uk for their records. Random inspections will take place in labs to check that all PGT students working alone have the requisite laboratory training.
- All lab-based PGT and Year 4 UG students must carry out a written risk assessment for their project before starting work which must be approved by their academic supervisor before the work starts.
- The risk assessment must be filed on RiskNET with the academic supervisor of the work as the final approver for the assessment. Other co-approvers (e.g. a researcher supervisor) may be included.
- The approved (signed and dated) risk assessment must also be available in the lab in a designated place. Normally this would be in a wall mounted document holder labelled "risk assessments".
- Lone working is never permitted for Year 4 UG students.
- For PGT students, lone working must be minimised and should be restricted to low-risk tasks that the particular student is competent to do. Lone working by PGT students may only be permitted during normal working hours. The risk assessment must define which activities the PGT student may carry out without supervision when they are judged competent to do so, and which activities must always be supervised.
- Tasks which are considered high risk, and therefore always require supervision include the following: working with hazardous compressed gases (e.g. hydrogen, oxygen), working with liquid nitrogen, working with highly corrosive or toxic substances (e.g. aqua regia), and high temperature work (e.g. removing hot items from a furnace).
Low risk tasks would include synthesising low hazard chemicals, using furnaces on or off, and using low risk commercial and analytical equipment.
- Supervision in this case means having assigned PDRA or PGR student advisor in the lab as they carry out the task. Advisors must have read/been involved in the risk assessment of the individual(s) they are supervising.
- PGR students may only supervise PGT/UG students if they are suitably experienced with the type of work the student will do and are deemed competent by their academic supervisor.
- Competence of the PGR student or PDRA must be judged by the academic supervisor. The academic supervisor should have evidence of the PGR student's/ PDRA's competency as part of their staff training records.
- Academic supervisors are at liberty to choose not to allow any unsupervised working by their PGT/UG students.
- The PGT/UG students, and PGR advisor, must understand the risks involved in the project and emergency action specific to the project (e.g. location of the spill cleanup kit) as set out in the risk assessment.
- Work for PGT/UG students should be scheduled by consultation with the supervisor and the PGR/PDRA advisor, and should be scheduled across the academic year rather than leaving all the lab work to the last moment. Accidents are more likely to occur when pressed for time.
- UG students will not be issued lab keys. PGT students may be issued a key if the academic supervisor wishes, and the student gives a £10 deposit (to be returned to them on return of their key).

Working hours for PGT and Year 4 UG students are strictly 9:00 am to 7:00 pm Monday to Friday only and no exceptions will be made.

2.1.10 Young Persons Visitors for Work Experience

Young persons are defined as aged 16-17 years old. Guidance for Young Persons undertaking work experience (e.g. as A-level students or as apprentices) in the Department is presented below:

Mandatory Safety Training

Local induction and familiarization for the Young Persons guided by the Work Organiser responsible for the Young Persons' placement should be carried out.

Permission Required from the Head of Department

The Head of Department must give permission by email to the Work Organiser for anyone under the age of 18 to work in the Department and ensure that the UCL's Child Protection (Safeguarding) Policy is implemented.

Responsibilities of Principal Investigators and Supervisors

The P.I./ supervisor responsible for the visit must ensure:

- Written parental or guardian consent has been obtained;
- A work plan specific to the project that the Young Persons are involved in is documented and communicated to the Work Organiser (e.g. school, college, parent, or guardian);
- They have contact details of the Work Organiser;
- A [risk assessment](#) that takes into account the risks and limitations of the work placement in the Department. The significant findings of the risk assessment should be communicated to the Work Organiser and the Young Persons before the start date;
- Any PGR students or staff who are dealing with Young Persons alone must have a DBS check. UCL HR can submit their application for DBS check, so they need to contact HR to complete their application: HR Services hrservices@ucl.ac.uk. Not that it may take considerably time to receive the DBS check results.
- The Young Persons understand that they must take care of their own health and safety and cooperate with UCL's arrangements for safety;
- The Young Persons are informed of areas and activities which are prohibited;
- Young Persons must not work with radiation or in radiation areas;
- The HoD and Departmental Safeguarding Officer are notified of the visit.

Insurance

Send an email to June Campbell (june.campbell@ucl.ac.uk | Insurance Manager | Finance & Business Affairs) with the names of the Young Persons and the dates of the placement at the latest one week before the visit.

Useful contacts

Departmental Safeguarding Officer: Dr Isobel Mackay | i.mackay@ucl.ac.uk | 07841

Departmental Safety Officer: Ms Natalie Burnham | natalie.burnham@ucl.ac.uk | 02013

Additionally, Young Persons should not undertake work which:

- is longer than a standard 8-hour day, five days in any consecutive seven-day period, or unnecessarily long or unsocial hours;
- cannot be adapted to allow for a physical or mental limitation;
- involves working alone or unsupervised;
- exposes them to toxic, radioactive, and cancer-causing substances, or x-ray instruments;
- involves extreme heat, noise, or vibration;
- involves workshop machinery e.g. grinding wheels, lathes, cutting, and drilling machines.

2.1.10.1 Children Visitors

The department may occasionally host children under the age of 16 as visitors, for instance primary school children for outreach events. The visit organiser must ensure:

- Written parental or guardian consent has been obtained;
- A [risk assessment](#) for the visit is in place and has been communicated to their parent/guardian;

- The PGR students or staff who are dealing with children alone must have a DBS check;
- The Departmental Safeguarding Officer has approved the visit;
- If the children visit a lab using radioactive materials or x-ray instruments, the risk assessment must clarify why this is safe and how it is known that any radiation dose received will be safe;
- The children are always supervised.

Useful links

<https://www.ucl.ac.uk/safetyservices/policies/2020/aug/youngpersons>

<https://www.gov.uk/government/organisations/disclosureandbarringservice>

2.2 GENERAL SAFETY

2.2.1 Security in the Department

- If you are suspicious as to why someone is in the building, ask if you can help with directions. If you have serious concerns, please contact Security and do not approach.
- Do not let people you do not know through card access doors without checking their ID card.
- Do not give any keys to other members of staff. If keys are lost, new keys can be obtained from the Facilities Manager.
- People leaving the department must return their keys before leaving. Access cards should be returned to UCL Security.
- Lost keys should be reported to the Facilities Manager.
- Keys will be issued to give individuals access to the areas they need for their work.
- Master/submaster keys will only be issued to staff members needing to access multiple rooms for their work.
- Keep codes secure for rooms fitted with digital code locks. If you believe someone unauthorised may know the code, then contact the Facilities Manager to have the code changed.
- Those working in rooms fitted with a digital code lock should use the code for access and will not normally be issued with a key to the door.
- At the weekends and outside normal working hours there is limited cover by UCL Security personnel, and the front desk may not be manned at all times, and most of the card access doors in the building will lock to restrict movement of unauthorised people in the building.
- Do not leave unsecured valuables (laptops, iPads, mobiles) openly on display when not present.

The Department has a small CCTV system with images recorded for safety, security, and managing out of hours working. Contact the Facilities Manager for details of the CCTV policy. Signs are prominently displayed in areas covered by this system.

2.2.2 Working in Laboratories

Read Material Safety Data Sheets (MSDS, provided by supplier) and consider the tasks to be carried out. Complete a **Risk Assessment** for all new experiments, or altered experiments and record these on [RiskNET](#), as well as having a hard copy available in the lab.

Do observe the following rules when working in laboratories:

- Wear flat shoes which fully cover the feet.
- Tie long hair back.
- Tuck items that may dangle, including lanyards, scarves, and long beards, jewellery, into the lab coat.
- Wear an appropriately sized lab coat (signage on door will indicate where this is required).
- Wear suitable safety glasses or goggles (signage on door will indicate where this is required).

- Wear appropriate gloves if necessary to protect against burns or contamination.
- Avoid working alone.
- Dispose of waste according to the MSDS sheet and departmental waste policy.
- Carry out all work likely to involve release of gases/vapours in a fume cupboard.
- Do not eat, drink, smoke, vape, or chew gum.
- Do not use broken glassware (dispose of any immediately).
- Do not leave unlabelled containers of chemicals.
- Do not use mobile phones as they may become contaminated with chemicals.
- Do not wear headphones, earphones, ear pods, or other similar devices that block out sound in the lab, including using a single ear pod. Radios, speakers, and other similar audio equipment can be used provided that the volume is at a level such that any alarms or calls for help can still be heard.

Further notes:

- Do not use latex gloves routinely (sensitisation may occur) and ensure the glove material is suitable for the compounds used.
- Do not buy chemicals in quantities larger than those needed. This can be a false economy as unwanted substances can be expensive to dispose of. The quantity of hazardous substances stored in a lab should always be kept to a minimum.
- Permission to access labs other than your usual lab should be given by the supervisor of that lab before entering.

2.2.3 Workshops (currently 303D and G13)

Work in these areas is restricted to trained personnel, or with the consent of the supervisor in charge.

2.2.4 Cold Storage

- Food and drink must not be stored in the laboratory, including in any laboratory refrigerator.
- All items stored in refrigerators must be clearly labelled and dated.
- Solvents and flammable materials must not be stored in refrigerators unless they are spark free.
- All materials should be removed from cold storage when no longer required and disposed of in the correct manner.

2.2.5 First Aid

A list of qualified first aiders in the department is given in [Section 6.3](#), and mental health first aiders in [Section 6.4](#). Names and contact numbers are also displayed on the green signs located by wall mounted first aid kits. The first aid kits are checked each month by the DSO or DDSO to ensure they are fully stocked. All kits are closed with security tags which can be easily removed when needed and are used as an indication that contents need to be restocked. An [incident report](#) must be submitted after a first aid (and any other safety) incident, or whenever the security tag has been removed.

2.2.6 Deliveries of Large or Heavy Equipment

When arranging delivery of large or heavy items please bear in mind the following points:

- It is generally safer to unload large items in Mallet Place.
- Clarify with the supplier how the delivery will be lowered from the vehicle to the ground. UCL may have a forklift available with prior arrangement.
- Couriers that attempt to unload without the correct equipment will be turned away and the supplier notified. Note that they are likely to charge for redelivery.

- Large deliveries should be booked in using the [online system](#). Please contact the Facilities Manager for details.

The delivery of large heavy items via the loading ramp at the ground floor exit from Roberts can be hazardous due to the slope and there have been near misses in the past. The following conditions apply to deliveries at the ramp:

- The maximum height clearance for vehicles wishing to unload on flat ground, under the archway, is 2.8 m.
- The length of the flat section is 8.5 m.
- Vehicles higher than 2.8 m may unload on the ramp providing they have the correct equipment to do so, such as a forklift truck, tailgate etc., and that they have taken into account the slope of the ramp. Maximum slope towards the archway is 9 °.

The person requesting the delivery **must inform the supplier of these restrictions** and ensure that appropriate arrangements are in place for unloading.

2.2.7 Transporting Chemicals around the building and campus

When transporting chemicals and substances around the building and campus there are a number of precautions that must take place.

- Remove gloves – gloves should not be worn outside of the laboratories. Chemicals and other hazardous substances should be well contained in their packaging for safe transport whether the distance is between adjoining labs or between buildings.
- Samples must be fully sealed. Caps must be finger tight. Consider using an extra wrap (e.g. Parafilm) to ensure that they do not leak, including odours.
- You may most likely need to use double containment or as many layers of containment needed to minimise the risk of the chemical or substance coming into contact with the carrier's hands or any surface it might come into contact with.
- If the samples are particularly pungent or many are being carried, use an additional container to put the samples into.
- Take extra precautions when using lifts as smells can linger for a long time.
- Consider transporting samples outside of periods of high activity in the building.
- If transporting a lot of chemicals or heavy items use a suitable trolley. There are a number of trolleys in the Department that can be borrowed by asking one of the Safety or Facilities Team for them.
- When transporting large volumes of chemicals in a trolley, it is recommended that a mini spill kit is also carried in the trolley in case a spill incident occurs enroute.
- Use a bottle carrier when transporting large bottles. Using them will avoid accidentally slipping, dropping, and smashing containers.
- Use a bottle carrier if transporting large chemical bottles between labs. These can be ordered by the DSO if a lab does not have one.
- Make sure that the packaging is appropriate for chemical transportation. The Stores Manager ensures that large glass bottles remain in their original packaging. However, if when picking up an item from Stores it is felt that the packaging is not suitable, the Stores Manager may be able to provide additional packaging if needed.
- If heavy items are regularly transported, the [UCL Manual Handling Course](#) must be completed, which teaches the proper technique for carrying heavy items and helps protect staff / researchers from developing injuries.

2.3 SAFE USE DIRECTORY

2.3.1 Safe use of equipment and facilities

All equipment users must carry out visual checks before using the equipment. If a fault or any damage is spotted, the user must take the piece of equipment out of action immediately by labelling clearly that it is faulty so that nobody else attempts to use it. If possible, store the faulty equipment away until it can be fixed or appropriately disposed of. The user must also report the fault to their supervisor.

No staff or student may alter or tamper with any equipment or building infrastructure without first seeking advice and approval from both the department facilities and H&S managers.

2.3.2 Laboratory induction and Equipment

All new people working in labs (inc. visitors, UG/PGT/PGR students, PDRAs) must be given a **local lab induction** on their first day working in the lab. The date of the training must be recorded. This should be done alongside the local fire induction and all other mandatory safety training. The laboratory's Area Safety Representatives (ASR) have access to a general local lab induction checklist, which can be modified for specific lab equipment or activities.

You may need some instruction before you use some equipment. Often this will be quite simple and will be provided by another researcher in the laboratory. For more complex equipment **special training** is essential. You should ask your supervisor to arrange **special training** before you use any of the equipment listed below. Please note that if any equipment has not been used by the user for more than six months, refresher training may be required, including online training.

- High pressure gas equipment
- Gas cylinders
- Cryogenics
- Lasers
- Radiation (including X-rays)
- Workshops equipment

If it is absolutely necessary and part of the research work, equipment can be left running unattended overnight by following the rules below:

1. Consult with your supervisor about running unattended equipment i.e. overnight running
2. Seek advice from the DSO/DDSO
3. Overnight permits should include the relevant risk assessment, main hazards, and the safe shutdown procedure. Overnight permits are available from the [Safety Website](#).

Only equipment authorised by the Facilities Manager may be left running over the Christmas or Easter shutdowns. Please contact them for more information.

2.4 MATERIALS CONTROL

Most materials and equipment come to the Department from suppliers who also provide sufficient information for their safe use and disposal. You should take particular care to ensure the safe handling of items that are supplied by other routes, for example from collaborators in industry or from other universities.

No items should be brought into the Department unless they can be safely stored and used in facilities under the control of a responsible member of staff. All items must have the official CE or

UKCA mark. A route for the disposal of the item must also be available and appropriate PPE to handle the item must be available before work starts.

No controlled drugs may be purchased by anyone in the Department without first consulting with the department technical H&S manager. A list of commonly encountered controlled drugs can be found [here](#) and UCL guidance can be found [here](#).

2.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

All PPE must fit properly, be made to the appropriate standard and be appropriate to the level of risk. The work risk assessment may indicate that additional PPE is required. Remember that PPE only protects the wearer and should only be used to control residual risk (small risk left after other control measures are in place), or if there is no other practicable way to control the risk.

Refer to signage on the lab doors as to the basic PPE required before entering the laboratory.

2.5.1 Eye Protection

Eye protection in the form of safety glasses must be worn by everyone entering a laboratory where this is indicated by the door signage. Visitors should also wear eye protection in these areas, and it is the responsibility of the person they are visiting to make such protection is available and is used.

Standard prescription glasses are **not** an acceptable alternative to safety glasses as they have no side protection and are not guaranteed to offer the same level of impact resistance as safety glasses. Safety over-glasses may be used. The department can cover the cost of prescription safety glasses which will be provided if the researcher can provide a good reason why over-glasses are not suitable (contact the DSO).

2.5.2 Lab Coats

An appropriately sized laboratory coat must be worn whenever working in a laboratory unless the door signage indicates otherwise. Two coats for each lab user must be provided (one to use when the other is being washed). Lab coats are provided upon request by the Department.

Lab coats should preferably be stored on dedicated lab coat hooks and not on the back of lab chairs or on benches. Lab coats should also ideally be washed regularly (e.g. once every month or so). A lab coat launder service is arranged on a weekly basis by the department Facilities Administrator. Instructions for getting lab coats washed are emailed out to the Department weekly.

2.5.3 Footwear

Wear footwear which covers the whole foot (no sandals) when working in any laboratory.

2.5.4 Respirators

Respirators (whether reusable masks with detachable filters or disposable masks) have a limited effective lifetime which may be only 8 hours of use. It is important that they fit the individual properly as they can give a false sense of security. Equally, if the filter is not appropriate to the airborne contamination, they will not provide protection to the wearer.

The department has trained Face Fitters. Please check the responsible persons register and contact these testers directly.

For guidance on choosing respiratory protection see:

- Respiratory protective equipment at work: <http://www.hse.gov.uk/pubns/priced/hsg53.pdf>
- UCL Safety Services offers a respirator fit testing service: <https://www.ucl.ac.uk/safetyservices/policies/2022/may/respiratoryprotectiveequipmenttrpe>

2.6 INSPECTIONS

Regular inspections are used to ensure that the Department is conforming to health and safety policies as set out by UCL, HSE, and in this handbook. These encompass Lab, Office, Kitchen, and Storeroom environments and are designed to identify safety concerns and bring about corrective action from them.

Note: Maintenance faults, which affect the safety of any room, should be reported immediately to the Facilities Manager (e.g. fume cupboard alarms, faulty lights, leaking pipes).

The competent persons to perform these H&S inspections are the DSO, DDSO, Facilities Manager, Administrative Assistant (office inspections), and HoD. Additional help may be sought from the Area Safety Representative when required.

Once inspections are complete, the DSO will arrange to visit each research group to address any questions arising from the inspections. Supervisors are responsible for presenting the DSO with a full list of corrective actions within four weeks of the meeting. Where the inspection has found a significant safety concern this timeframe may be reduced and the lab may be closed by the DSO, DDSO, Facilities manager, Technical Operations manager, Faculty or UCL Safety Advisor, until the issue has been resolved. The results of these inspections are stored on the Staff Intranet/ SharePoint.

Once all corrective actions have been performed the results and trends will be communicated to the Departmental Safety Committee where actions as a result of the inspections will be discussed. Actions from the Safety Committee will be reported to the Senior Management Team. The training compliance of each group will be assessed at these group meetings, ensuring all members have completed the full mandatory training required by the Department (**Section 2.1.7**).

2.6.1 Laboratory Inspections

The DSO will arrange for laboratory inspections to be carried out once a term against a formal checklist.

In the inspection, compliance against a list of standard measures is assessed. These include:

- Ensuring that suitable PPE is readily available and those working in the lab are wearing the correct PPE.
- Assessing whether researchers understand safety protocols in the lab.
- Checking if the risk assessments are up to date and in the lab.
- Checking that the controls stated in risk assessments are implemented.
- Checking general housekeeping and working environment is suitable.
- Ensuring that waste receptacles are being used correctly.
- Checking that there are no electrical items which may present a hazard.
- Checking fire safety, spill equipment, and first aid provision is sufficient.
- Ensuring local rules for specific hazards such as cryogenics, radiation, and lasers are followed.
- Ensuring that the correct procedures are being followed for:
 - Systems at risk of developing legionella.
 - Systems that operate at nonambient pressure.
 - All medical gases, including equipment and storage.
 - All ventilation equipment, including fume cupboards and LEV arms.
 - All lifting and working at height equipment.

Along with formal inspections, the DSO will perform monthly lab spot checks. Checks include:

- Appropriate PPE use.

- A risk assessment for any work being carried out in the lab.
- Awareness of the other hazards in the lab.

In addition to formal lab inspections carried out by the DSO, supervisors must also arrange for short monthly inspections of their labs (carried out by the Area Safety Representative (ASR)), with the results and corrective actions recorded in the lab. A suggested check list can be obtained by ASRs from [here](#).

2.6.2 Office, Kitchen, and Storeroom Inspections

The DSO will arrange for office, kitchen, and storeroom inspections to take place every year.

A formal checklist will be used to assess the hazards present in the room. These include:

- Checking general housekeeping and working environment is suitable.
- Checking that there are no electrical items which may present a hazard.
- Ensuring that waste receptacles are being used correctly.
- Checking fire safety, spill equipment, and first aid provision is sufficient.

3 RISK ASSESMENT PROCEDURES

3.1 GENERAL RISK ASSESMENT PROCEDURES

- All work activities that pose a significant risk must be covered in a risk assessment.
- Consideration must be given to anyone who enters the laboratories (e.g. visitors, contractors, cleaning staff, and security staff who may need to access labs when no researchers are around). Clear signage on hazardous areas may be required).
- The level of detail needed in any risk assessment should be in proportion to the risk associated with the work activity.
- If hazardous substances are used, then they must be considered as part of the risk assessment.
- Risk assessments must be completed by the individual in control of the experiment.
- Assessments must be authorised by the person having immediate management control over the work being done, who is normally the supervisor in a research lab.
- It is the responsibility of both the person carrying out the activity and the person who authorises the assessment to ensure that all control measures agreed in the risk assessment are implemented. If this cannot be done or the control measures are changed, the risk assessment needs to be reviewed and updated to reflect these changes.
- The person who authorises the risk assessment must ensure that the controls stated in the risk assessment are always implemented.
- In such circumstances when the risk assessment requires more expertise, then another suitable person must authorise the risk assessment. (e.g. for high voltage work the Estates electrician).
- Risk assessments created by supervisors must be peer reviewed if their manager is unable to approve them.
- Under no circumstances must risk assessments have the same assessor and approver.
- Risk assessments must be dated when authorised and should be reviewed every 12 months, or sooner if the risks have changed significantly or it is suspected the assessment is no longer valid for any other reason.
- Risk assessments are recorded on [RiskNET](#).
- Risk assessments must be archived for 5 years after the activity was last taking place. After 5 years the risk assessment can be deleted.
- The findings of risk assessments including control measures required must be communicated to those carrying out or being affected by the work. This may be done in [RiskNET](#) using the distribution list feature, through group meetings, or other methods.
- There is no legal requirement to carry out a specific, separate, risk assessment for people with medical conditions. However, if a supervisor becomes aware that somebody has a medical condition (including mental health conditions) or a disability, they should review their existing risk assessments to make sure the current control measures are adequate and will cover any additional risks that might be present for the person with the medical condition. Please see the UCL websites for more information on both [Assessing the Risks of Medical Conditions](#) and [Adjustment Passports](#).

3.1.1 Specific Types of Risk Assessments

If an activity involves radiation (including X-rays, radioactive sources, and Lasers) or stress, a specialist template must be used, either in the [RiskNET](#) assessment itself or attached to it.

X-rays: This [template](#) must be attached to the risk assessment.

Radioactive radiation: This [template](#) must be attached to the risk assessment.

Laser: Accessed on RiskNET. When adding a new activity in a risk assessment, the Laser activity is created from a Specialist Risk Area template.

Stress: Accessed on RiskNET. When creating a new assessment, a stress risk assessment should be selected. Then when adding an activity, the assessment is created from a Specialist Risk Area template.

3.1.2 General Risk Assessments for the Department

The department has various general risk assessments, where the controls and risks can be used to adapt controls for personal project risk assessments. They can be accessed on [RiskNET](#).

Generic High Hazard Risk Assessment: RA044624

Generic Event Risk Assessment: RA059323

3.2 PERSONAL HEALTH

3.2.1 Pregnancy

Regulations require that if employee member of staff advises their employer in writing that they are either pregnant, have given birth within the previous six months (including still births after 24 weeks), or is breast feeding, the employer must assess the work activities of any such member of staff and where any risk is identified, control that risk.

Any risk assessment involving a pregnant worker (as defined above) should clearly identify this condition. Existing risk assessments should be revised to consider whether additional controls are required and must be reviewed every trimester. For more information see: <https://www.ucl.ac.uk/safetyservices/az/newandexpectantmothers>

Pregnant students are under no obligation to inform the department. However, the department will not be able to assist you with your learning, access and assessment arrangements if it does not know that you are expecting. Visit the UCL intranet pages on [Pregnancy & Adoption](#) for more information on this subject.

3.2.2 Medical Conditions

3.2.2.1 Allergies

Staff and students with preexisting severe allergies (e.g. to eggs, nuts, insect bites/ stings etc) are advised to make their line manager and local first aiders aware of their condition, so they may be better prepared to help in the event of an allergic reaction. Speak to the technical H&S manager if you need to carry any medication on you that requires specific storage conditions (e.g. temperature sensitive drugs).

3.2.2.2 Other medical conditions

Staff and students with other known medical conditions (including mental health conditions) which might contribute to departmental risks to themselves and/or others should make their supervisor aware. The supervisor will then be able to update the risk assessment accordingly and introduce any additional controls measures that are needed. Staff and students should also make their supervisor aware if they are on any medications which might impact departmental risks.

3.2.3 Partners

Risk assessments that include hazards such as Xray radiation should include the risk for prospective partners. An assessment of the exposure the staff or student is taking home to their partners or

family must be performed. The Radiation Protection Supervisor can be contacted for advice about this.

3.2.4 Health surveillance

Health surveillance may be required if the risk assessment indicates that there is a residual risk to health from the work and:

- there is an identifiable disease/adverse health effect and evidence of a link with workplace exposure.
- it is likely the disease/health effect may occur.
- there are valid techniques for detecting early signs of the disease/health effect.
- these techniques do not pose a risk to employees.

This most often occurs when exposed to the following hazards:

- Noise or vibration, which can result in a range of conditions known as hand arm vibration syndrome.
- Solvents, dusts, fumes, biological agents and other substances hazardous to health, which can cause various health issues including allergic reactions.
- Asbestos, lead, or work in compressed air, which can damage respiratory organs.
- Ionising radiation, which can cause organ failure or cancer.

It is the supervisor's responsibility to inform UCL Occupational Health of work which will require health surveillance.

Very small quantities of some chemicals and materials may trigger severe allergic reactions. If you suffer from an allergic reaction, you should notify the supervisor in charge of the work, who may refer the research to Occupational Health. The allergic reaction incident must also be reported on [RiskNET](#).

4 HAZARDS AND THEIR CONTROL

The hazards present in the Department, and the controls that must be used in order to control their risks, are detailed below. It is not extensive and is necessarily generic, and so should be used as a minimum starting point for planning the control of risks.

4.1 PHYSICAL HAZARDS

4.1.1 Cryogenics

- Liquid nitrogen (77 K), liquid argon (87.3 K) and solid carbon dioxide (185 K) can cause severe burns if they come into contact with the skin.
- Suitable gloves (e.g. mid-length or gauntlet cryogenic gloves) and eye protection (e.g. a face shield), as specified by the activity's risk assessment, must be worn when transferring liquefied gases.
- Dewars, designed to slowly vent gas as the liquid boils off over time, should be used to transfer cryogenic liquids. Dewars may only be transported in lifts if unaccompanied and other people are prevented from accessing the lift. Please see the DSO about organising this.
- Users of liquid nitrogen must attend the training offered by UCL Safety Services (see [Section 2.1.8](#)).
- The risk assessment for work involving liquefied gases must take into account the risk of explosion and the effect of a major spill considering the size of the room, effectiveness of the ventilation, and whether oxygen depletion monitoring may be required.
- In the event of a major spillage or the oxygen level dropping below 18% all persons should leave the room immediately, close the door and not re-enter until it can be confirmed that the atmosphere is safe to breathe.

For more details see:

<http://www.bcg.co.uk/assets/BCGA%20CP30%20Rev%203%202023072019.pdf> and [UCL guidance on Cryogenic Substances](#).

4.1.2 Noise

If the noise level exceeds 80 dB for 6 hours, 85 dB for 2 hours (shouting to talk to someone 2 m away) or 90 dB for 45 minutes (shouting to talk to someone 1 m away) a risk assessment is required which covers exposure to noise. Appropriate PPE (ear defenders) may be required if the noise cannot be controlled in other ways (e.g. sound absorbing enclosure).

For more information see: <http://www.hse.gov.uk/pubns/priced/l108.pdf> and [UCL guidance in noise hazards](#).

4.1.3 Display Screen Equipment

A DSE user is defined as any UCL employee, graduate research student, or long-term visitor who habitually uses display screen equipment as a significant part of their normal work. All DSE users should complete an online self-assessment as part of their DSE risk assessment. This will be issued to them automatically by Safety Services or can be accessed on [RiskNET](#) at any time and gives guidance on safe DSE use.

The risks associated with DSE use are postural problems (leading to various musculoskeletal disorders including upper limb disorders and back disorders), visual problems (eyestrain), fatigue, and stress. These can generally be avoided by adopting a good working posture (e.g. adjust desk and monitor) which minimises repetitive movements and strains, ensuring there is good environmental lighting (e.g. adjust brightness and contrast on the screen), and taking frequent short breaks (don't sit in the same position for long periods).

Task change software is available which will bring up a reminder to take a break (free from <http://www.workrave.org/download>).

There is no evidence that disease or permanent damage to eyes or eyesight can be caused by DSE use. However, any uncorrected visual defects may lead to temporary eye strain when using DSE, so UCL offers free eye tests to all employees (not research students) under the Eye Care Scheme. (<https://www.ucl.ac.uk/humanresources/eyecarebenefits>).

For more information see:

<https://www.ucl.ac.uk/safety/services/policies/2020/may/practicalguidancedse>



Figure 1: Diagram indicating good posture (Source: HSE)

4.2 ELECTRICAL HAZARDS

4.2.1 Portable electrical equipment

- All portable electrical appliances should be maintained by a competent person and periodically inspected. Each piece of equipment will be labelled with an identifying number and the date of last inspection. This information should also be documented.
- All new electrical equipment coming into the department must be checked, as soon as it arrives, by the Computing and Electronics Support Group. This is especially important for used equipment either bought second hand or brought in from home.
- All electrical equipment purchased should be of an approved standard e.g. Kitemarked, BSI, CE, or UKCA approved. Any electrical equipment bought from a UK or EU supplier will be constructed to the appropriate standard. If specialised equipment is only available direct from overseas, please consult with the DSO and electronics technician before purchase.
- **No one should construct or modify mains electrical equipment without guidance from technical staff.** Students are not trained to do this work, are usually not aware of how to design safe equipment, and mistakes made can lead to fire or electric shock.
- Consider using a residual current device (RCD) to reduce the risk of a severe electric shock, particularly if the equipment will be used around water. Ensure that the RCD switching current is no more than 30mA.
- When equipment is not in use it should be switched off at the mains for safety and to conserve energy.

- **Do not use untested equipment!**

Multi Socket Extensions

- All extension leads must be PAT tested before being used within the department.
- There must be no daisy chaining (plugging one into another) performed.
- Extension leads must not be overloaded by plugging in high Amp appliances. Examples of high Amp devices include anything that heats or cools, e.g. ovens, water baths, and conditioners. These must be plugged in directly to the wall.
- Do not use multi socket extensions with more than six sockets.
- Do not use square mains plug/ cuboid electric adaptors.
- Do not store extension leads on the floor, if possible, mount them to walls.
- If a cable crosses a pathway, cable covers or cable protectors must be used.
- Cables must be tied up to avoid trailing.
- Only CE or UKCA extension cables may be used.
- Extension cables are not a permanent solution. Contact the Facilities Manager if more sockets are required in a room.
- User must check extension leads for damage, e.g. corrosion or breaks, before use.
- All extension cables must be fused.
- Areas next to water must be avoided.
- Areas with a lot of dust should be avoided, however if they must be used, plug socket covers should be installed when not in use.

User Checks

Users of portable electrical equipment should regularly check it to identify any obvious faults:

- Are any inner wires of the mains lead showing?
- Are there any cracks, scorch marks or any other form of damage to the plug?
- Is the plug securely connected to the mains lead?
- Is the mains lead damaged in any way (e.g. melted or split)?
- Are there any cracks or other damage to the casing of the equipment?
- Are the pins of the plug corroded, bent or damaged in any other way?

If any of the above faults are found do not use the equipment but take it to the Electronics Technician for repair (a.corredera@ucl.ac.uk / Ext: 33808) in 303D.

Portable Heaters

Portable heaters should not normally be necessary in the department. Any heating device is a potential fire risk and using portable electric heaters is poor from a sustainability point of view. The Chemical Engineering Department may temporarily provide oil filled electric radiators if either of the following conditions are met:

- The temperature in the workplace is typically less than 19 °C for at least an hour between 9 am and 6 pm.
- A researcher or member of staff has a medical condition which makes them particularly susceptible to the cold and it is not practical to increase the temperature of the room in which they work.

Any heater provided remains property of the department and if provided due to the room being cold it must be returned as soon as the temperature returns to over 19 degrees. **Do not use portable fan or radiant heaters in the department.**

- The user of the heater is responsible for ensuring that it is turned off at the wall socket when they leave work.
- Heaters must not be left on overnight.

- Heaters must not be covered or in contact with combustible material (e.g. clothing) or positioned near water while in use.
- Heaters must be plugged directly into a wall mains socket (not via an extension lead), used only when vertical, and the usual rules for safe use and inspection of electrical equipment explained in the safety handbook apply.

4.2.2 Electric shock

Only if safe to do so, turn off the power to the affected area/equipment. Do not touch anyone who has suffered an electric shock unless you are sure they are no longer in contact with the live object, or the power has been switched off. If it is not immediately possible to switch off the power and they are still in contact with the object, try to pull them away from it using something nonconductive (e.g. wooden broom or an extension cable).

Contact your nearest First Aider (**Section 6.3**) if you or a colleague receives a painful electric shock. Even if there appears to be no injury, internal burns and heartbeat irregularities are possible, and a medical consultation is required.

4.3 RADIOACTIVE MATERIALS AND RADIATION

- The departmental Radiation Protection Supervisors must be consulted before any radioactive material or x-ray instrument is either brought into the department or taken out.
- Written local rules outlining the work procedures required for all radiological operations should be available to workers and signed by them to indicate that they have read them.
- Supervisors must ensure the work is carried out in accordance with the local rules.
- Risk assessments must consider the arrangements for servicing of equipment. The engineer may need to disable interlocks to work, and the room may not be safe for researchers to work in.
- The name and contact details of the RPS must be displayed on the door of any lab working with radiation (including lasers, x-ray generators and unsealed sources).
- Young persons (under 18) and pregnant women are particularly at risk of harm if exposed to ionising radiation and if either are to work near or visit a radiation lab the risk assessment must explain why they cannot be exposed or how it is known that the exposure will be safe for them.
- UCL Staff and researchers who as part of their studies work with radiation off site must complete a risk assessment for this work which will draw upon the risk assessment of the host organisation. Personal dosimetry may be required. If so, they must also pass on to the RPS records of doses received while working off site.

Relevant Publications:

Working with Radiation, IRR17 approved code of practise:

<https://www.hse.gov.uk/pubns/ priced/ l121.pdf>

Working with Ionising Radiation at UCL:

<https://www.ucl.ac.uk/safety services/ workingsafely ionising radiation>

4.3.1 Dose Monitoring

The RPS manages the issuing of dose monitoring badges and the records of doses received where this is required for the work. The RPS will check the monthly dose records when they arrive and investigate and abnormal dose readings. The research supervisor is responsible for notifying the RPS of the need for any additional badges for visitors or new researchers.

4.3.2 Radioactive substances

Ordering of any radioactive materials must be done only with approval of the Radiation Protection Supervisor (RPS) as they need to ensure that the department's allocation is not exceeded. The RPS must be consulted before commencing any new work with radioactive materials.

Radiation emergency procedure

In the event of any accident involving radioactive materials, the RPS must be informed immediately. The research group must have plans in place as to how to deal with an emergency and these should be tested through drills.

Delivery, storage and disposal of radioactive material

- All deliveries of radioactive sources must be notified to UCL. Strict regulations exist governing the operations in laboratories involving radiation and radioactivity.
- Only special-order forms may be used to order radioactive materials.
- Containers must be clearly marked "DANGER RADIOACTIVITY" and laboratories must have a "DANGER RADIOACTIVITY" sign on the door. Equipment of any sort in such laboratories must not be disturbed without the permission of the research worker concerned. Containers must show the contents and indicate the radionuclide activity present and its date.
- All sources not in use for long periods should be properly disposed of with the advice of the College Radiation Protection Officer. The RPS/deputy RPS should be notified.
- Holdings of all nuclear material (including depleted uranium) must be reported on a monthly basis with the assistance of the departmental Euratom coordinator (see appointed persons [Section 6](#)).

4.3.3 Xray generators

- No X-ray generators may be brought into the department without the prior authorisation of the department RPS and the UCL Radiation Protection Team in accordance with UCL standards OP17 on project authorisation ([https://liveuclac.sharepoint.com/sites/SafetyServicesIonisingRadiationProtection/SitePages/OP17ProjectApprovalProcess\(IonisingRadiations\).aspx](https://liveuclac.sharepoint.com/sites/SafetyServicesIonisingRadiationProtection/SitePages/OP17ProjectApprovalProcess(IonisingRadiations).aspx)) and OP20 on Xray generators (<https://liveuclac.sharepoint.com/sites/SafetyServicesIonisingRadiationProtection/SitePages/OP20XrayGenerators.aspx>)
- The department RPS will maintain an inventory of Xray generating equipment within the department including location, model and Xray tube maximum kV.
- Xray generating equipment should only be operated by authorised personnel who have completed the UCL online x-ray users training, local x-ray equipment induction and have registered as a radiation worker.
- All users of the equipment must be aware of the location of emergency stop switches, meaning of warning lights, safe operation of their x-ray instrument, and action to take in the case of suspected unintended exposure to x-rays.
- A set of local rules must be in place and the equipment only operated within the limits as defined therein.
- The current UCL radiation risk assessment template must be used for the equipment rather than a free form assessment.
- New work must follow the UCL radiation work approvals process (<https://www.ucl.ac.uk/safety/services/policies/2022/apr/radiationprojectapprovalprocess>)
- For Xray generators it should be reasonably practicable to install effective devices, e.g. reliable electrical or mechanical interlocks which prevent or terminate an exposure if the door of the enclosure is opened. Clear warning signals will also be needed.

4.3.4 Lasers

- The Departmental Laser Safety Supervisor must be informed before a new laser device is brought into the department.
- The project supervisor should carry out a specific laser risk assessment before starting work with any laser using the appropriate template issued by the UCL Laser Safety Officer. All experimenters must be aware of the hazards associated with the laser they intend to use.
- **If Class III or above lasers are to be used the experimenters must attend the Laser Safety course run by UCL Safety Services.**
- Hazardous operations may be carried out only when there is at least one other person available to give assistance in the case of accident.
- The current UCL laser risk assessment template must be used for class 3B and class 4 laser risk assessments rather than a free form risk assessment.

The following working practices should be followed regardless of the class of laser used:

- Do not look into any laser beam.
- If possible, keep room lights bright.
- Remove any reflective jewellery.
- Use beam dumps to terminate any stray beams.
- Clamp optical components securely.
- Keep beams horizontal.
- Always keep your head above the level of the beam.
- Fully enclose the beam if possible; partially enclose the beam if full enclosure is not practicable.
- If enclosure and interlock is not practicable then this must be justified, and it must be detailed how risks to persons unexpectedly walking into the room are controlled.
- Laser eyewear must be suitable for the wavelength, power and type (pulsed/continuous) of beam.
- Laser eyewear must be stored carefully when not in use (e.g. in designated wall mounted holder) and not left on the bench.
- All points of access into areas containing lasers must be marked with a clearly visible warning sign.

See the [UCL guidance on laser safety](#) for more details.

4.3.5 Ultraviolet sources

- Ultraviolet light can be hazardous to the eyes and skin. The level of risk depends on wavelength, power, and exposure time.
- UVA (315-400nm) can cause burns and cataract formation, UVB (280-315nm) is most destructive to tissue causing skin burns at much lower exposure levels, UVC (100-280nm) has a low risk of causing burns to the skin but can still burn the cornea in the eye.

The following protocols should be followed:

- Enclose the beam and do not look directly at the source.
- If full enclosure is not possible, polycarbonate safety glasses or a polycarbonate face shield and protective gloves may be required. This PPE only protects the user.
- The risk assessment must consider how to avoid visitors or other lab users being exposed to UV radiation.
- UV sources emitting around 185nm will produce ozone from oxygen in the atmosphere so either need to be connected to an extraction system or have the beam path flooded with an inert gas.
- Mark areas where UV sources are in use with appropriate signage.

4.3.6 Microwaves, ovens & furnaces

- Microwave radiation can be harmful. Any equipment containing a microwave device must be reported to the RPS/deputy RPS.
- Metal containers must not be used in microwave ovens and caps or covers should be loose fitting to prevent explosions.
- Laboratory microwave ovens must not be used for warming food.
- Care should be exercised when opening ovens or furnaces, heat resistant gloves and eye or face protection must be worn.
- Furnaces or heaters which will run overnight must be fitted with an over temperature device which will cut off the power to the heater if the primary controller fails and the temperature exceeds a safe level.
- If there are any exposed heated surfaces these should be shrouded and warning signs placed nearby.

4.4 CHEMICAL HAZARDS

4.4.1 COSHH Regulations

Control of Substances Harmful to Health (COSHH) provides a legal framework to protect people against health risks from hazardous substances used at work. This is done by considering their hazardous properties, how they cause harm, the ways they are used and how to control the risks.

4.4.2 Emergencies

Academic supervisors must consider possible problems and make sure everyone knows what to do in an emergency involving hazardous substances. Things to consider are:

- Make sure workers know enough to prevent the mixing of incompatible chemicals.
- Lay down the procedures to be followed if there is a leak or spill of flammable material and make sure people know and understand them.
- If special first aid facilities or equipment are required, then departmental first aiders need to be made aware of this.

4.4.3 Chemical spill procedures

- A spillage kit suitable for the types of chemicals being handled, as well as the correct type of Personal Protective Equipment (PPE) for spill cleanup must be on hand in every laboratory.
- Information on handling spillages of specific hazardous chemicals must be included in the laboratory risk assessments.

Action when spillage occurs:

The member of staff or student first on the scene must immediately alert other people to keep a safe distance away.

1. Inform others that you intend to deal with the spill and notify a member of technical staff.
2. Isolate spill and consider sealing off the area and displaying warning signs on the doors. If there is a possibility the chemical could seep to the floor below, the occupants must be warned and evacuated.
3. If a flammable liquid is spilt, eliminate ignition sources, such as naked flames and do not use electrical switches in the immediate area, as a spark from the switch may ignite the spill.
4. Ventilate area, open windows where possible and close doors to avoid vapours spreading. Opening LEV arms and fume cupboard sashes can increase the air exchange rate in the lab.
5. Assemble the spill kit equipment and PPE then make preparations to deal with the spill.

6. Protect floor drains or other means for environmental release. Spill socks and absorbents may be placed around drains, as needed.
7. Contain and cleanup the spill according to type of substance spilt and information on handling spillages of specific hazardous chemicals included in your laboratory risk assessments and MSDS information sheets.
8. When spilled materials have been absorbed, use brush and scoop to place materials in an appropriate container. Polyethylene bags may be used for small spills.
9. Identify the material as Spill Debris identifying name of chemical(s) and affix a label to the container. Dispose of contaminated waste chemicals safely.
10. Report all spills using the online the Incident/Accident report form and inform the DSO.

Visit

<https://www.ucl.ac.uk/safety/services/policies/2023/nov/respondingchemicalspills#Spill%20drills>
for more information on handling chemical spills.

4.4.4 Toxic chemicals

- Researchers should refer to MSDS sheets and the EH40 Workplace Exposure Limits list published by the HSE as part of their risk assessment before working with toxic chemicals: <http://www.hse.gov.uk/pUbns/priced/eh40.pdf>
- A substance not listed in the EH40 document is not necessarily safe.
- In determining the control measures required remember that PPE is a last resort and only protects the individual.
- Highly toxic compounds should be kept in a locked cabinet, and an inventory kept of their use.
- Poisoning can result from breathing mercury vapour. Spilled mercury rapidly develops a film of dirt, which reduces the vapour pressure, but this film is readily broken by vibration. Any spillage of mercury should be cleaned up immediately, using the kits available in your lab or from the DSO.

4.4.5 Carcinogens, mutagens & teratogens

- Research workers wishing to use known or suspected carcinogenic materials must consult the DSO.
- A code of practice must be drawn up before any work is undertaken.
- The Department reserves the right not to allow use of certain compounds on safety grounds.

4.4.6 Dust and fine powders

- If working with dusts or fine powders, try to avoid the possibility of creating an airborne suspension by enclosing the area. If this is unavoidable look for engineering controls (enclosure with extraction and dust capture filter).
- Doing the work in a standard fume cupboard is not an effective long-term solution as the dust is likely to settle out in the duct system.
- A suitable facemask (which fits properly) can be used if the dust cannot be avoided or contained by other methods.
- Many substances which are not normally considered flammable can when airborne as a dust cloud create a flammable or explosive atmosphere ([Section 4.6.3](#)).

4.4.7 Asbestos

- Breathing air containing asbestos dust can lead to asbestos related diseases. These are mainly cancers of the chest and lungs.

- Any worker asked to carry out any operation in the department that brings them into contact with asbestos should contact the Departmental Safety Officer.
- Under NO circumstances should any asbestos based materials be used in the department.
- If you uncover any hidden material or dust which you suspect may contain asbestos, stop work and get advice. Ducts and access panels in the building may conceal areas containing asbestos dust. Where the risk is known warning labels will be found applied to panels.
- Always be especially careful when working with old insulation board, ceiling tiles, cement sheeting and other material, which may contain asbestos. If you have to drill, cut, sand, or handle these materials, treat them as if they contained asbestos.

4.4.8 Explosives

- The term 'explosives' covers a very wide range of materials, all of which are subject to some form of control with regard to their manufacture, acquisition/keeping, storage, handling or transport.
- The quantities used in experimental work must be kept to a minimum. Even 0.1 g can do serious damage. Safety screens and protective equipment must be used.
- The DSO must be advised when such materials are intended to be used.
- **Note: some chemicals and materials which when reacted with, or subjected to other agents or conditions, could become explosive.**
- If there is a possibility an explosive atmosphere may be created, for example by the release of flammable gas or dust, the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) must be considered. These work on a zoning system and equipment used in certain zones must be 'Ex' rated for that zone. An example of this would be the use of spark free electrical fans for extraction of combustible gas mixtures.

Acetylene and acetylides. Acetylene gas is explosive under high pressure. Advice should be sought if you wish to use such cylinders. Acetylene gas can form explosive salts when in contact with certain metals (e.g. copper, silver, and mercury) so copper tubing should not be used.

Chlorates and perchlorates. The alkali metal salts, and ammonium perchlorate are not explosive, but salts of heavy metals, or salts of metals carrying organic ligands, or mixtures of perchloric acid and organic compounds, may be sensitive to shock or to heat.

Ethers. Diethyl ether, dibutyl ether, Di isopropyl ether, dioxan, and tetrahydrofuran react with the oxygen in air to form peroxides which accumulate in the residues of a distillation and may then explode. Never leave bottles of these solvents half empty for a long period. Never distil the solutions to near dryness. Put the date on the bottle when it is opened and dispose of the contents after a year.

Peroxides. Concentrated hydrogen peroxide may decompose violently in the presence of some metal ions. It forms explosive solutions or mixtures with many organic solvents. Storage vessels must always be fitted with vented caps.

Organic peroxides are potentially explosive, particularly when the ratio of C and H to O is low. The components should be handled on only a small scale. Benzoyl peroxide which is used as a polymerisation initiator should be kept damp.

Relevant Publications:

[Explosives Regulations 2014](http://www.hse.gov.uk/pubns/books/l150.htm)

<http://www.hse.gov.uk/pubns/books/l150.htm>

<http://www.hse.gov.uk/explosives/index.htm>

4.5 INDUSTRIAL GASES

4.5.1 Gas cylinders – General safety

- Cylinders **MUST** at all times be secured adequately against falling and only transported by trained personnel. If a cylinder must be moved more than five metres, a cylinder trolley must be used (British Compressed Gas Association Guidance Note 3). BOC personnel on site can be asked to do this. The department has a gas cylinder trolley available so that researchers who have been trained may move cylinders themselves over short distances.
- Gas monitors/alarms – The need for these will be determined by conducting a risk assessment before using any new gas or gas process. In general, gas alarms/monitors are to be used wherever there is a possibility that a dangerous atmosphere could be created by a leak.
- Where hazardous gases are intended to be used, assess the practicality of installing a vented enclosure for the cylinders.
- The number of cylinders in a workplace must at all times be kept to a minimum. BOC can deliver most common gases within 24 hours. There must be sufficient justification for keeping a spare cylinder in the lab, taking into account the degree of hazard posed by the particular cylinder.
- Cylinder size/gas volumes must at all times be kept to a minimum; ideally these should be sized to last for a maximum of **3 months** use.
- All cylinders must be shut off (both at the main cylinder valve and regulator valve) when not in use.
- Cylinders which have a key operated main valve should always have a cylinder key nearby and clearly visible. Ideally this should be left attached to the cylinder valve.
- Display signs on all entrances to an area where compressed gases are used indicating the types of gases present.
- Any equipment connected to a gas cylinder, which has been modified, repaired or been disassembled in any way, must be checked for leaks using an appropriate leak detecting solution.
- Leave fume extracts on continuously in rooms with gas cylinders. This will allow gas to dissipate to a safe level more quickly in the event of a leak occurring out of hours.
- Where gas is delivered from a cylinder by a dip tube into a liquid, the regulator and cylinder must be protected against possible suck back by a trap or nonreturn valve.
- All cylinders containing liquified gas must be stored and used in an upright position.
- Lecture bottles must be clamped to a suitable stand; otherwise they should be stored in a rack away from any source of heat. Those containing toxic or corrosive material are best kept in a fume cupboard or cylinder cabinet with extraction.
- The main cylinder valve should only be opened enough to maintain the desired outlet pressure and flow rate. It should not be necessary to have the valve fully open.
- Oxygen cylinders must not be positioned within 3 metres of a flammable gas cylinder, and preferably not within 5 metres of an ignition source unless separated by a fire-resistant barrier. An oxygen outlet to atmosphere (e.g. vent line) should not be within 3 metres of a flammable gas outlet.
- **All cylinder valves have a righthand thread (off is clockwise).**

Regulators

- Gas regulators must not be changed by researchers of staff unless they have been trained to do so.
- Regulators must be replaced every five years (or when specified by the manufacturer). If the age of a regulator cannot be determined it must not be used.

- The regulator outlet pressure should be set to the minimum level required for the equipment connected to the gas line.

Gas lines

- The tubing and equipment connected to a gas line will not normally be rated to accept full cylinder pressure. If the gas being used is toxic or flammable, then a pressure relief valve must be included after the regulator which will allow safe venting of the cylinder in the event of a regulator failure. This also applies to cylinders of inert gases which if vented into the room would cause the oxygen level to drop below 17%. The valve must be set to operate at a pressure which the gas line and all equipment connected to it will withstand.
- A flow cutoff valve must be installed in gas lines which carry toxic or flammable gases if the cylinder will be left on overnight (an overnight permit will also be required). This will automatically switch off the gas flow if a break in the line occurs and the flow rate dramatically rises. Consider fitting such a valve to any toxic or flammable gas line.
- Flashback arrestors are recommended on cylinders containing combustible gases or oxygen and are essential if both a fuel and oxidising gas are connected to a rig.
- Flammable gas lines should be earthed.
- For each gas line, each component must be from the same supplier (e.g. do not mix HyLok and Swagelok fittings in the same line). Though the risk of leaking is low, the seal will not be as good as it can be, so leaks are still a possibility.

Above all, ALWAYS read and comply with the suppliers' instructions.

4.5.2 Oxygen enrichment

Materials that ordinarily will burn only slowly will burn very vigorously in an oxygen enriched atmosphere. Other organic materials such as greases and oils may ignite in this kind of atmosphere.

As well as the precautions outlined above for flammable gases, the following points should be remembered:

- Never use oxygen as a substitute for compressed air.
- Never use oxygen to sweeten the air in a working area or confined space.
- Never use grease or oil on equipment containing oxygen.
- The risk of ignition increases as the oxygen pressure and temperature increase.

4.5.3 Oxygen depletion

Any situation where there is a risk of the atmospheric oxygen content being depleted to < 19% is hazardous. The risk assessment needs to consider this, along with the appropriate control measures. Asphyxiation can occur slowly and without warning if oxygen levels continue to drop below 16% (HSE L101, Confined Space Working).

- An oxygen detector/alarm should be installed if there is a risk of oxygen depletion in the work area.
- Particular attention should be paid to situations in which nitrogen, carbon dioxide, or other gases are likely to be generated in confined spaces (see [Section 4.1.1](#)).

4.5.4 Noxious odours

Any chemical process that produces noxious odours should be carried out in a fume cupboard. Where this is not possible due to equipment scale or other reason, some form of separate ventilation or scrubbing should be used. Respirators should only be used as a last resort.

4.5.5 Gas monitors and detectors

Managers of the work activities for which gas monitors and detectors are installed must prepare written arrangements to cover the following:

- Gas monitors/alarms – The need for these will be determined by conducting a risk assessment before using any new gas or gas process. A gas is considered to be hazardous if it is likely to lead to a fire, explosion, poisoning, or asphyxiation in the event of its escape.
- The allocation of specific duties to named individuals.
- Individual responsible for the work which involves the use of gas monitors and detectors is identified (named manager).
- Gas alarms to be left on continuously to provide out of hours warning of gas leaks. Alarms must be clearly audible from the outside of the laboratory with the doors closed when activated.
- Record all occasions when the alarm sounds, the reason for the alarm and the actions that were taken to rectify the situation. This may be done using the online incident reporting system in [RiskNET](#).
- Managers must ensure that staff and students are instructed and trained on the action to be taken should the alarm sound.
- Signs must be posted at all entrances to areas with gas alarms stating:

When Gas Alarm Sounds:

1. Leave the room.
2. Do not enter room.
3. Prevent access to room by other people.
4. During normal working hours call technician.
5. When out of hours prevent access to room and ensure technical staff are notified the next working day.

Fixed gas alarm systems in the department are maintained by the department. PIs are responsible for ensuring their portable gas alarms are kept in proper working order.

4.5.6 Process diagrams

All experimental rigs using compressed gases must have a diagram displayed by them which clearly shows the gas lines, valves, flow controllers and any other devices in the flow system along with expected pressures. This must be inspected and signed off by the supervisor or their chosen representative (e.g. a postdoctoral researcher) before the rig is operated. Any changes to the set up must be reflected in the diagram and the new diagram approved. If a rig is often changed between different configurations, then a diagram for each can be prepared and approved, but the correct diagram for the current arrangement must always be displayed. Diagrams will be checked against experiments as part of the laboratory safety inspection each term.

4.6 FLAMMABLE MATERIALS

An enormous variety of flammable substances may be found in the workplace. They range from the obvious, e.g. petrol, paint thinners, welding gases and heating fuels, to the not so obvious, e.g. packaging materials, dusts from woodworking, and dusts from food stuffs such as flour and sugar etc.

Appropriate extinguishers should be available nearby for the flammable substances present.

4.6.1 Control of flammable materials

Three ingredients are needed for a fire: a fuel, air or other oxidising agent, and a source of ignition. If you control these ingredients, fires can be prevented.

Eliminate flammable materials

Exchange a flammable substance for a less flammable one or eliminate flammable substances from the process altogether.

Reduce the quantity of flammable substances held in the lab

Only order what you need for the near future. Dispose of old chemicals which are no longer being used.

Provide adequate ventilation

Good ventilation will mean that any vapours given off from a spill, leak, or release from any process, will be rapidly dispersed.

Remove sources of ignition

Have all the obvious ignition sources been removed from the storage and handling areas? Ignition sources can be very varied and they include sparks from electrical equipment or welding and cutting tools, hot surfaces, open flames from heating equipment, smoking materials etc. Electrostatic charge buildup and release to earth generating a spark can be a hidden ignition source. Special care must be taken to avoid this when flammable mixtures are created in the lab.

Containment flammable materials

Are your flammable substances kept in suitable containers? If you have a spill, will it be contained and prevented from spreading to other parts of the working area? Use of lidded containers and spillage catchment trays, for example, can help to prevent spillages spreading.

Segregate flammable materials

Are flammable substances stored and used well away from other processes and general storage areas and incompatible substances (e.g. oxidising agents)? Can they be separated by a physical barrier, wall or partition? Separating your hazards in this manner will contribute to a safer workplace.

The following sections deal with specific types of flammable substances. The precautions mentioned need to be considered in addition to the general principles just described.

4.6.2 Flammable liquids

Flammable liquids can give off large volumes of flammable vapours at room temperature. These vapours, when mixed with air, can ignite, often violently. Spilled flammable liquids can, if not contained, flow a long way to an ignition source, and then flash back to the source of the leak. Spills on clothing can represent a serious risk of injury if ignited. To help control these risks:

- Store flammable liquids in a purpose made metal bin or fire rated cupboard.
- Only store the minimum amount required for regular use. A detailed risk assessment is required if more than 50L must be stored in a lab and additional safety controls may be needed.
- Dispense and use flammable liquids in a safe place where there is good ventilation and no source of ignition.
- Keep containers closed when not in use. If possible, use safety containers which have self-closing lids.
- Dispense liquids over a tray and keep some non-flammable absorbent material handy to mop up spills.
- Dispose of contaminated materials safely.
- Any bottles containing over 500 mL of flammable liquid must be put away after use and not left out on the bench.

- If the flash point of the liquid is near or below room temperature the risk of ignition is significantly higher. This applies to the majority of common organic solvents.

4.6.3 Flammable dusts

Fine flammable dusts dispersed in the workplace atmosphere can, if ignited, explode violently and cause a lot of damage. If you handle flammable dusts you need to remember the following:

- Keep plant dust tight.
- Keep the working area dust free by regular cleaning, and vacuuming spillages as they occur using the appropriate vacuum cleaner.
- Some dust handling plant has special safety features built in. The purpose of these needs to be properly understood and they should be maintained in good working order.
- Beware of electrostatic charge build up when transferring powders.

4.6.4 Flammable solids

Some types of plastic foam, packaging materials, polyester wadding and textiles will ignite easily and burn fiercely, giving off a lot of dense black smoke. Remember:

- Do not store these materials close to heaters or electrical equipment which could run hot and act as a local ignition source.
- Make sure that gangways and exits from storage and working areas are kept clear of packaging materials and finished products containing flammable solids etc. In the event of fire, gangways and exits could become obscured by smoke.

4.6.5 Flammable gases

A small amount of released flammable gas can fill a large area with a potentially explosive mixture. Light gases such as hydrogen will rise to ceiling level and form flammable gas pockets even if the volume of gas leaking is small in comparison to the room volume. The following points need to be considered:

- Consider the lower explosive limit of the gas, the volume of the room and the maximum possible leak volume;
- Flashback arrestors must be installed after the regulator if there is any possibility of reverse flow of oxidising gas up the flammable gas line.
- Hydrogen is particularly susceptible to ignition on leakage from high pressure due to the increase in temperature on rapid decompression. A hydrogen flame is almost invisible.

Relevant Publications:

British Compressed Gas Association Publications:

http://www.bcgas.co.uk/pages/index.cfm?page_id=6&title=publications

4.7 STORAGE AND DISPOSAL OF CHEMICALS AND OTHER HAZARDOUS MATERIALS

4.7.1 Acquisition

- The academic supervisors are responsible for ensuring the safety of any material or equipment obtained other than by purchase from a recognised supplier. This includes borrowed equipment, or the Interuniversity transfer of materials and samples.
- Acquisition of a chemical under the controlled material categories must be reported, as a license or registration is needed from the Home Office and some security procedures may need to be in place in order to possess these types of material.
- For chemicals included in the schedules under the Chemical Weapons Convention, information of its acquisition, consumption and disposal will be needed.

- Annual departmental holdings of these chemicals will need to be given to the Appointed Person for Controlled Materials.

4.7.2 Labelling of materials

It is vital that ALL containers of materials are clearly and unambiguously labelled in a way which is meaningful to not just those in the research group (e.g. labelled in English and avoiding acronyms). Loose or defaced labels must be replaced, and where materials are to be taken or sent outside the Department the labelling must conform to EC regulations and suitable GHS hazard symbols displayed (<http://www.hse.gov.uk/chemicalclassification/legal/clpregulation.htm>). Within the Department, the following information must be stated on the label:

- Name of contents (must be full name no abbreviated initials correlating to your experiment).
- Name of person responsible.
- Date material was bottled or made or first opened.
- GHS hazard symbol(s).

This is inclusive of any materials that have been decanted out of their original container and any mixture or sample. Temporary containers (e.g. used just for a few hours or a day) only need labelling with the name of the substance.

4.7.3 Storage of materials

All chemicals and materials should be housed in approved containers and marked as above. These should then be stored in an appropriate and safe location with segregation of incompatible substances in mind.

An example of the storage procedures that should exist in laboratories are as follows:

- Flammables kept in fire rated cabinet.
- Halogenated solvents kept in cabinet separate from flammable solvents.
- Acids and bases kept separately.
- Solvents over 500 mL should not be stored on bench tops.
- Gas cylinders should be secured to the bench or wall.
- Storage cupboards/cabinets must have the correct hazard signs on the door.
- Do not store chemicals and lab equipment in the same cupboard.
- Excess quantities of chemicals, gases and other materials should not be stored in laboratories. They should be ordered as and when they are needed and any old chemicals are to be disposed of via suitable waste route.

4.7.4 Waste

The key practices to follow in any laboratory are:

- Do not dispose of anything sharp in general waste bins.
- Only put clean glass in broken glass bins.
- Do not put anything contaminated with chemicals in general waste bins.
- Never pour water immiscible liquids (e.g. oil) or organic solvents down the drain.

To dispose of hazardous waste (such as chemicals and solvents) first ensure that the waste is securely contained in jars or bottles which are clearly labelled with the contents and put these together in a box. Contact the DSO to arrange for the disposal of hazardous waste.

4.8 WORKSHOPS

This section applies to the use of all workshop type equipment used in any workshop and laboratory. Note: The Mechanical Workshop is under the control of Biochemical Engineering and any staff or

students permitted to use the equipment should abide by Biochemical Engineering Workshop Safety Rules under the supervision of the workshop manager.

4.8.1 Mechanical workshop operations and workshop machines (general)

The use of Workshop machines is only permitted under the supervision of a responsible member of the Workshop staff.

- Only research students who have completed a workshop safety course and judged competent may use the powered workshop machines.
- Machines must not be used unless there is at least one other person present in the area.
- Eye protection must be worn.
- You should ensure that you know the positions of emergency stop buttons.
- Machines must not be operated unless relevant guards are in position.

4.8.2 Abrasive Wheels

The fitting and condition of abrasive wheels and other rotating abrasive tools is the responsibility of the Workshop Manager. The use of any such equipment should only be carried out by, or under the supervision of, a member of the Workshop staff.

4.8.3 Welding & Soldering

All welding and soldering operations should be carried out in the areas designated. Where this is not practical, suitable ventilation and or screening should be used. Welding operations must only be carried out by trained members of the technical staff. There must be risk assessments, including a COSHH risk assessment for all welding and soldering activities.

4.9 MAINTENANCE

4.9.1 Buildings maintenance

- External contractors should contact the Facilities Manager before starting any work in the Department and where necessary obtain a permit to work.
- Laboratories must be safe for cleaners to enter and a 'safe to clean' sign displayed. This must be removed if any foreseeable hazards that would be a danger for the cleaners become present in the lab.
- Any person carrying out such work should comply with the safety regulations as defined in the UCL Safety Policy and this document.
- Any member of staff (but not students) can submit a maintenance request using the online system and should do so when they discover a problem.
<https://www.ucl.ac.uk/maintenanceservicerequests/>
- Emergency Numbers:
- Internal Phone: 30000
- Mobile Phone: 0207 679 0000

4.9.2 Water leaks

If a leak is discovered, call the emergency building maintenance number from an internal UCL phone: 30000, or 0207 679 0000 from a mobile phone, and inform the Facilities Manager.

Water lines on experimental rigs must be secure if rigs are to run unattended. Leaks can lead to slips, costly damage to building fabric or lab equipment and can lead to electrical hazards if extension leads are left on the floor or water falls onto powered equipment.

4.9.3 Statutory Testing

Water systems at risk from Legionella

Water systems that are operated from 20 – 45 °C, have stagnant water, or are in containers that have a buildup of rust / scale are at risk of developing Legionella. Legionella can cause Legionnaires' disease, so the growth of Legionella needs to be controlled. A risk assessment must be completed for each piece of water containing equipment detailing controls to prevent the growth of Legionella. Control measures include emptying the tank periodically, ensuring the water is always flowing, avoiding the buildup of scale / rust, and avoiding operating the equipment at 20 – 45 °C.

Eye baths in labs must be flushed every week for 30 seconds to prevent the growth of Legionella. Lab managers are responsible for ensuring this is done.

Local Exhaust Ventilation Arms

Annual testing of all LEV systems is arranged by the department. Copies of the reports are recorded on a technical staff network drive (T:Drive) or on the department's SharePoint pages and each LEV has a safety label to mark their inspection test date.

Fume Hoods

Fume hoods are tested annually by the UCL Estates and have safety labels to mark their inspection test date. If you notice that a test label is missing or a fume cupboard has not been tested in the last year, please inform the DSO.

Laminar Flow Hoods

Testing of laminar flow hoods or recirculating safety cabinets is arranged annually by the Facilities Manager.

Pressure systems

Inspection of pressure vessels, including gas lines, is arranged by the department on an annual basis. Copies of the reports are recorded on a technical staff network drive (T:Drive) or the department's SharePoint pages. The Facilities Manager or DSO should be informed when any new pressure equipment is brought into the department so it can be added to the inspection list.

Any fittings or other items of equipment attached to a pressure vessel should be pressure tested or certificated to the pressure rating of the vessel to which it is to be attached.

Medical Gases and Alarms

Medical gases are any gases in the department supplied from BOC. For information about these arrangements, please see [Section 4.5](#).

Lifting Equipment and Safety Harnesses

Lifting equipment is tested annually by the college insurer, organised via the UCL Estates Facilities Support & Information Officer. Copies of the reports are recorded on a technical staff network drive (T:Drive) or the department's SharePoint pages. The Facilities Manager must be informed if any new items of lifting equipment are brought into the department. Equipment that has failed at statutory check will be removed from use, a sufficient investigation and implementation of corrective actions.

Portable Appliance Testing

Portable Appliance Testing (PAT) is covered in [Section 4.2.1](#).

Details of the university's arrangements for statutory testing can be found [here](#).

4.9.4 Work at heights

- A risk assessment should be conducted before working at height, taking into account the likelihood of a fall and the severity of the likely injuries. No person working at heights should work alone.
- Where the injuries due to a fall are likely to be severe due to either the nature of the lower surface or excessive height a safety harness should be used. This is required when using the winch and access hatches between the workshop and lower basement.
- All ladders must be securely lashed or attended by another person.
- Ladders should only be used as a work platform when the short duration or low risk of the work do not make a more stable platform (such as a tower) justified.
- Check ladders or safety harness for any faults before use.
- Avoid overstretching and maintain 3 points of contact with the ladder.
- Notices must be posted indicating that there is a potential hazard from above.
- Ensure that all tools and equipment are secure.
- Hard hats may be required by others working below where there is a potential hazard (e.g. when using the winch from the workshop to the lower basement).

4.9.5 Moving heavy weights

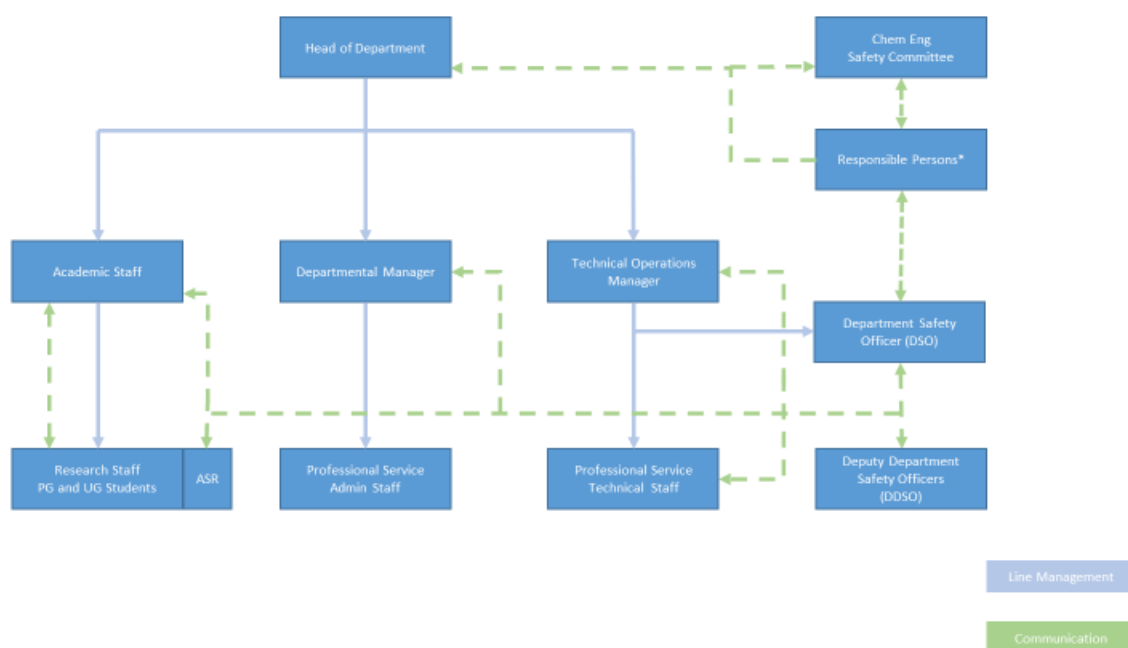
DO NOT ATTEMPT TO MOVE HEAVY EQUIPMENT. Consult the Facilities Manager. Equipment is available in the Department for moving heavy loads and lifting equipment should only be used under the supervision of a trained member of the technical staff.

5 RESPONSIBILITIES FOR HEALTH & SAFETY IN THE DEPARTMENT OF CHEMICAL ENGINEERING

5.1 MANAGEMENT STRUCTURE

DEPARTMENT of CHEMICAL ENGINEERING

SAFETY STRUCTURE



*Responsible Persons have specific safety roles in the department. E.g. first aid, Radiation supervision, Chemical Safety, etc

5.2 RESPONSIBLE PERSONNEL

In accordance with the [UCL Statement of Safety and Health Policy](#), it is the policy of the Department to take all reasonably practicable steps to promote the safety, health and welfare of all UCL personnel, students and members of the public on Departmental premises. The Head of Department (HoD) is responsible to the Provost for safety in connection with all work done in the Department and for the carrying out of those duties of Heads of Departments specified in the Policy Statement.

5.2.1 Departmental Safety Officer

A Departmental Safety Officer (DSO) and a deputy DSO have been appointed to advise the Head of Department of the standards of safety in the Department and to indicate areas where action needs to be taken.

The duties of the DSOs are to:

- Monitor and regularly review, the Department's organisation and arrangements for safe working.
- Compile, disseminate and update the departmental arrangements for safe working.
- Bring to the attention of the HoD or departmental management, at an appropriate level, any noncompliance with departmental arrangements for safe working.
- Report to the HoD on a regular basis any shortfalls in departmental, arrangements for safe working or any issues concerning the management of safety within the department.

- Monitor the implementation of changes to departmental arrangements for safe working.
- Ensure records are maintained of training received by individuals who are appointed to carry out specific safety roles and for mandatory UCL safety training requirements.
- Check that all accidents and incidents involving members of staff, students and visitors are reported using the [RiskNET](#) online incident reporting system and investigate to determine the causes or allocate to relevant personnel.
- Assist departmental management, Safety Services or any outside authority in the investigation of accidents and incidents.
- Act as a point of contact for receiving and disseminating changes and updates from Safety Services in relation to legislation or UCL policy, objectives and guidance.
- Take on a number of different responsibilities in the department which could include:
 - Controlled Chemicals
 - Disposal of hazardous waste
 - Legionella Manager
 - Fire Evacuation Marshall
 - First Aider
 - DSE Assessor
 - Incident Coordinator
 - Register Coordinator
 - Offsite Work Coordinator

Other named personnel responsible for safety in the department are listed in [Section 6](#). Additional responsibilities for the DSO can be found in a dedicated document on the Department's SharePoint site.

5.2.2 Departmental Managers, Principal Investigators and Supervisors

Departmental managers, Principal Investigators, and supervisors (an inclusive term to describe all those who have a duty to manage any aspect of the work activity of the department, whether carried out by staff or students) shall be accountable to the Head of Department for the health and safety management of the work activities under their control as directed by the Head of Department.

All supervisors who supervise research students have a safety responsibility for those who they manage. Their duties include:

- Assessing the risks of the work under their control
- Ensuring the implementation and maintenance of relevant risk control measures
- Ensuring the provision of suitable information, instruction, training and supervision of staff, students and academic visitors under their control taking into account the experience and skills of these people
- Ensuring the safe handling and use of hazardous substances and the maintenance of safe plant, machinery and equipment
- Ensuring that the operation and effectiveness of the risk control measures are monitored
- Ensuring all accidents and incidents are reported and investigated in accordance with agreed procedures and guidance
- Familiarising themselves with fire and emergency drills (including the location of emergency telephones) and escape routes
- As far as reasonably practicable, direct students to observe UCL instructions in respect of fire safety while in their direct charge
- Ensuring students are provided with clear information and instructions in the event of a fire situation, and take all reasonable steps to ensure safe egress of students in any teaching space used by them, regardless of the location

- Ensuring that they have appointed a suitable deputy to maintain appropriate supervision of the work under their control in their absence from the Department

Note: Under the arrangements between the Departments of Biochemical Engineering and Chemical Engineering, the mechanical workshop comes under the control of the Department of Biochemical Engineering with respect to their management structure and safety arrangements.

5.2.3 All Students and Staff

It is the responsibility and right of everyone in the department, including safety personnel, to intervene if they see something that could be potentially hazardous. Everyone also has an obligation to others to report issues that may be hazardous using the [UCL reporting system](#) or to the DSO. Reporting potentially hazardous items means these can be dealt with properly, with the risk of future accidents being reduced. There will be no repercussions for intervening or reporting in these circumstances.

Examples of when to intervene if someone is doing work that could be potentially hazardous::

- Seeing someone work with flammable gases next to an ignition source
- Seeing someone working with asphyxiants in a small nonventilated space
- Seeing someone working at height without the proper equipment
- Seeing someone open up electrical equipment to make modifications without those with specialist knowledge, e.g. the Electronics Technician, present.

Examples of reporting someone or something may include Departmental or UCL Estates matters:

- Seeing hazardous waste build up in or out of the building
- Seeing broken, corroded, or burnt electrical sockets or plugs
- Seeing people working without the correct PPE (estates personnel included)
- Seeing fire exits blocked or fire doors propped open
- Noticing fire extinguishers are missing

6 NAMED PERSONNEL

6.1 STAFF

Status	Name	Email	Phone
Head of Department	Prof Eva Sorensen	e.sorensen@ucl.ac.uk	020 7679 3802
Technical Operations Manager	Dr Toby Neville	t.neville@ucl.ac.uk	02081387793
Departmental Safety Officer (DSO)/ Technical H&S Manager (TSM)	Ms Natalie Burnham	natalie.burnham@ucl.ac.uk	020 3987 2013
Deputy DSO (Bloomsbury)	Miss Ami Shah	ami.r.shah@ucl.ac.uk	020 3108 5339
Deputy DSO (UCLE)	Dr Rosalie Hamill	r.hamill@ucl.ac.uk	
Senior Fire Evacuation Marshal	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Facilities manager	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Chair of Safety Committee	Prof Eva Sorensen	e.sorensen@ucl.ac.uk	020 7679 3802
Safeguarding Officer	Dr Isobel Mackay	i.mackay@ucl.ac.uk	020 8138 7841
Radiation Protection Supervisor (RPS)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Laser Safety Officer (LSO)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Nuclear Materials Inventory Coordinator (NMIC)	Dr Mateen Mirza	m.mirza.17@ucl.ac.uk	
Appointed Person (Flammable Gases)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Appointed Person (Statutory Testing)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Appointed Person (Controlled Materials)	TBC		
Appointed Person (Legionella)	Miss Ami Shah	ami.r.shah@ucl.ac.uk	020 3108 5339
Department Manager	Katy Le Lion	k.lion@ucl.ac.uk	0207 679 3824
Offsite Work Coordinator	Miss Ami Shah	ami.r.shah@ucl.ac.uk	020 3108 5339
Faculty H&S Advisor	Ms Emma Price	emma.price@ucl.ac.uk	
UCL Safety Advisor	Ms Debbie Allen	debbie.allen@ucl.ac.uk	T: 020 3108 2507 M: 078 2779 1988
UCL Head of Security	Mr Mark West	mbwest@ucl.ac.uk	020 7679 3343

6.2 FIRE MARSHALS

The following persons have been appointed Fire Marshals. **Figure 2** shows the respective zones which Fire Evacuation Marshals cover.

Senior FEM in bold type

Roberts Building

Name	Fire Zone Area
Albert Corredera	(045) 3 rd Main / West
David Ellis	(045) 3 rd Main / West
Mark Spurgeon	(045) 3 rd Main / West
Martyn Vale	(045) 3 rd Main / West
Simon Barrass	(045) 2nd Main
Justin Siefker	(045) 2 nd Main
Nick Snead	(045) 2 nd Main / West
Natalie Burnham	(045) 2 nd Main / West
Barry Reid	(045) 2 nd West
Toby Neville	(045) Upper Basement
Rhodri Owen	(045) Upper Basement
Ami Shah	(045) Upper Basement
Francesco Iacoviello	(045) Upper Basement
Alex Sebastiani	(045) Lower Basement
Jay Yan	(045) Lower Basement
Matteo Errigo	(045) Lower Basement
Zahra Echresh Zadeh	(045) Lower Basement
Lu Chen	(045) Lower Basement
Elan Mistry	(045) Lower Basement

South Wing

Name	Fire Zone Area
Michael Johnson	(012) 2 nd Floor lab 15
Joshua Cruddos	(012) 2 nd Floor lab 15
Roby Soni	(012) 2 nd Floor lab 15
Ji Hu	(012) 2 nd Floor lab 15

40 Bernard Street

Name	Fire Zone Area
Emmanuel Agunloye	(467) 3 rd Floor
Andrea Friso	(467) 3 rd Floor
Kostas Katsoulas	(467) 3 rd Floor
Monica Tirapelle	(467) 3 rd Floor

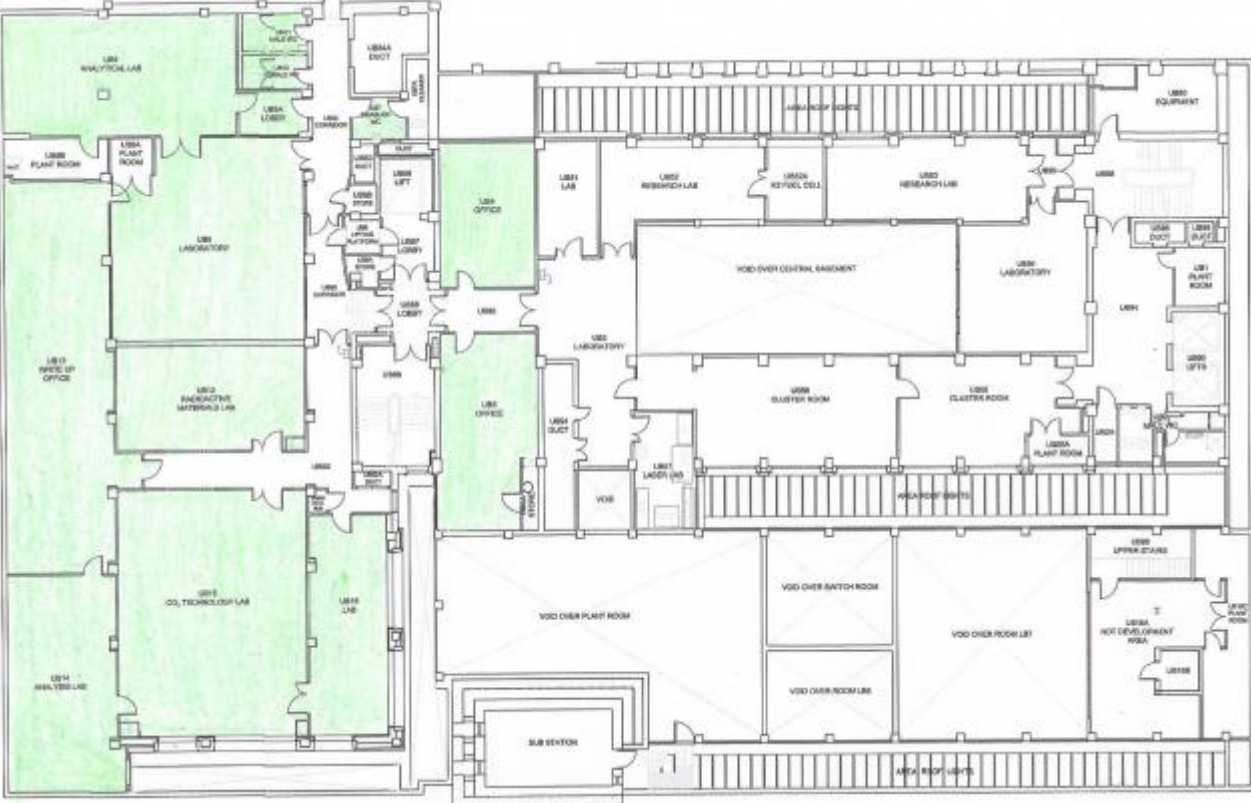
Main Quad Pop-up Teaching Space

Name	Fire Zone Area
Gargi Giri	(440) 1 st Floor

Lower Basement FEM Area



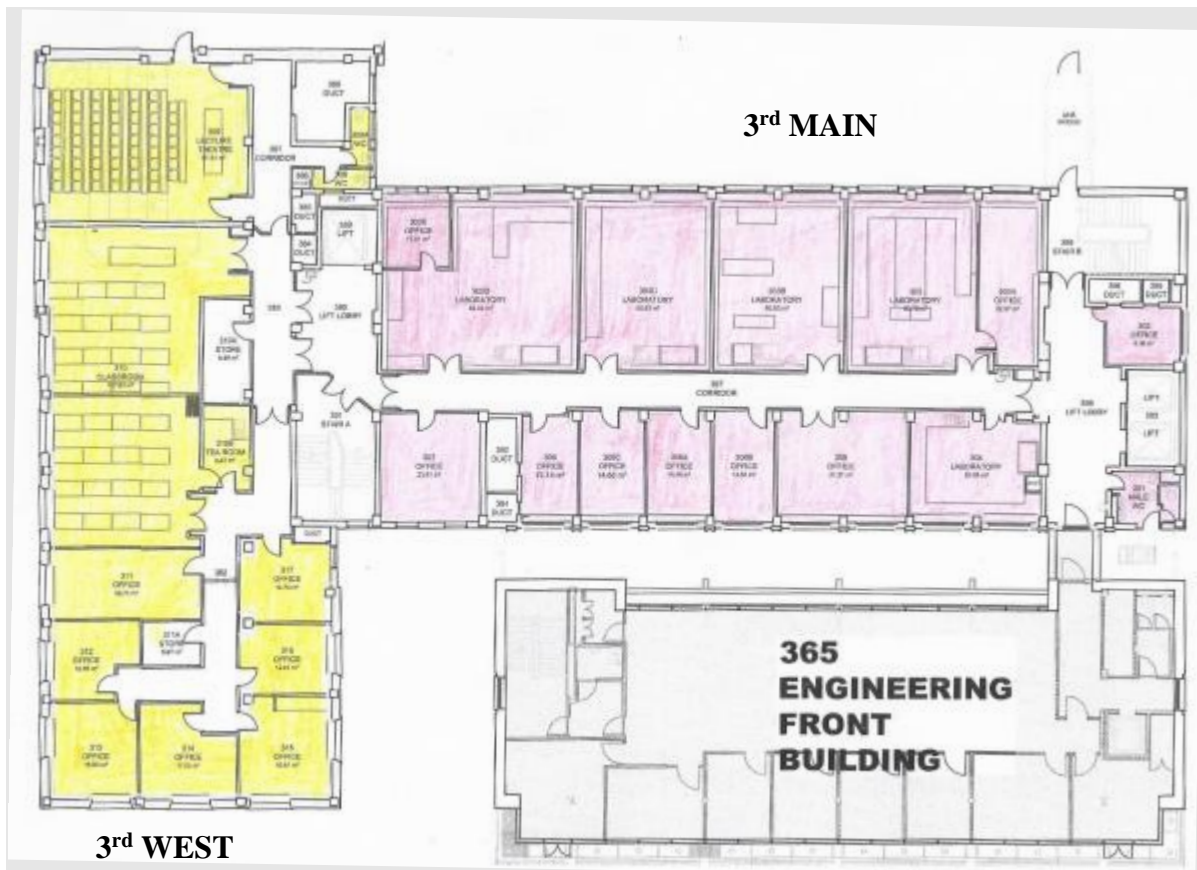
Upper Basement FEM Area



2nd WEST



3rd WEST



Document version: December 2023 - NB

Escape Routes

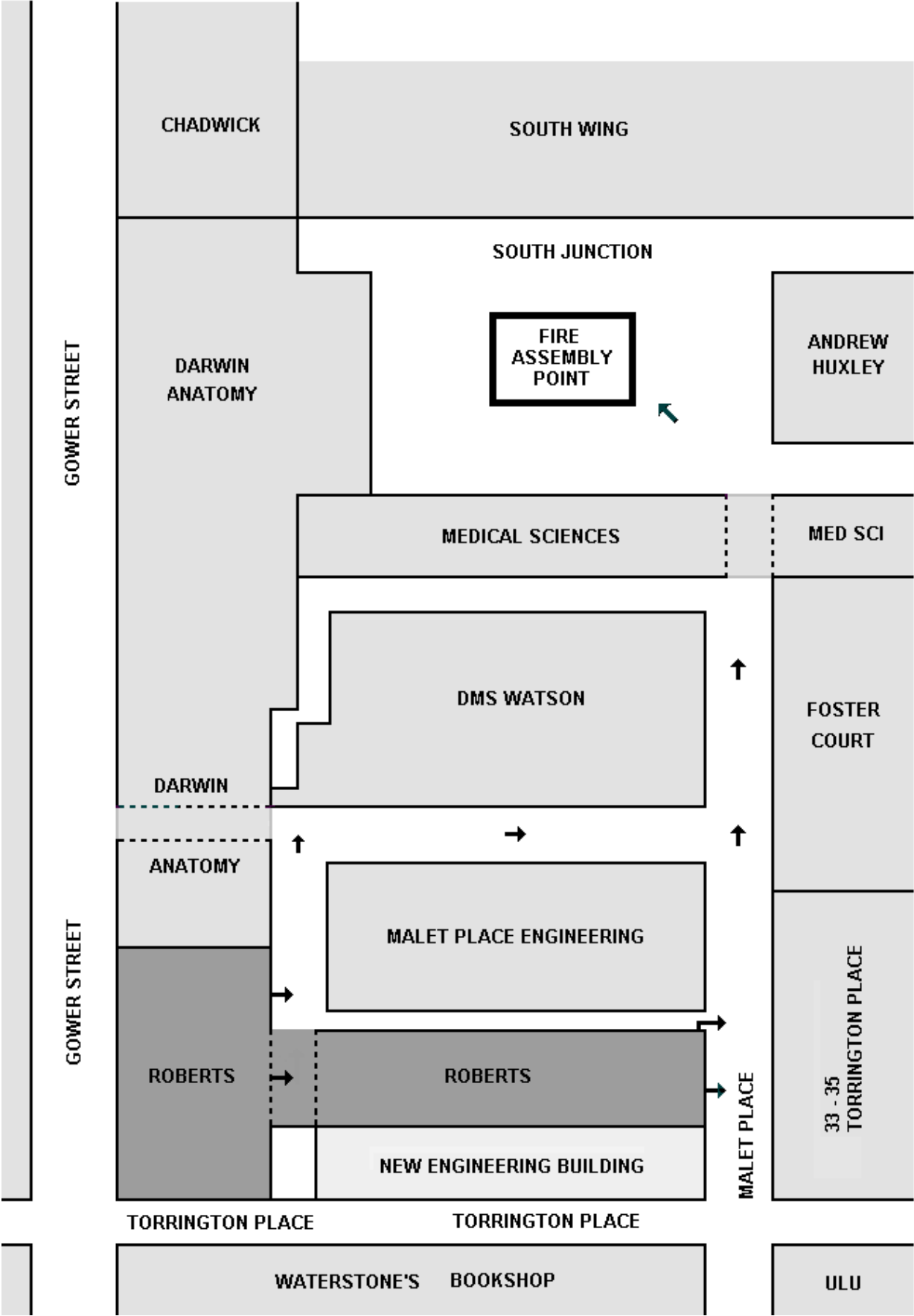


Figure 3: The fire evacutaion route from the Roberts building.

6.3 FIRST AIDERS

All first aiders have been trained to a British Red Cross standard.

EFAW: Emergency First Aid at Work (1 day course) | FAW: First Aid at Work (3-day course)

The department First Aid Number from any phone is: 020 8138 7007. From an internal phone it is: 07007.

The number for Roberts Security is: 020 7679 7974. From an internal phone it is: 37974.

Name	Status	Room
Albert Corredera	EFAW	303D
Simon Barrass	FAW	230
Nick Snead	FAW	23
Nirav Shah	EFAW	230
Natalie Burnham	FAW	231
Alex Norori-McCormac	EFAW	209
Sudeshna Basugupta	EFAW + outdoor	209
Isobel Mackay	EFAW	209
Zahra Echresh Zadeh	FAW	209 / LB21
Barry Reid	FAW	223
Eva Sorensen	EFAW	229
Toby Neville	FAW	UB5
Ami Shah	FAW	UB5
Francesco Iacoviello	FAW	UB5
Michael Johnson	EFAW	South Wing
Roby Soni	EFAW	South Wing
Roberts Building Security	EFAW	Reception Desk

6.4 MENTAL HEALTH FIRST AIDERS

PGR support only

Name	Email
Ibrahim Abdinur	ibrahim.abdinur@ucl.ac.uk
Zahraa Hussain	zahraa.hussain.20@ucl.ac.uk
Jia Di (Ed) Yang	jia.yang.20@ucl.ac.uk

Teaching and Learning Staff

Name	Email	Phone Number
Beth Hills	chemeng.teaching.admin@ucl.ac.uk	020 7679 3825
Marietta Bamidi	chemeng.teaching.admin@ucl.ac.uk	020 7679 7368
Seema Walker	chemeng.teaching.admin@ucl.ac.uk	020 8138 7202
Mark Tilse	chemeng.teaching.admin@ucl.ac.uk	020 7679 3059

Other Professional Service Staff

Name	Email	Phone Number
Katy Le Lion	k.lion@ucl.ac.uk	0207 679 3824

Academics

Name	Email	Phone Number	Room
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Elton Dias	elton.dias@ucl.ac.uk	020 8138 7842	209
Alex NororiMcCormac	a.norori-mccormac@ucl.ac.uk	020 8138 7843	209
Sudeshna Basugupta	sudeshna.basu@ucl.ac.uk	020 3987 2378	209
Isobel Mackay	i.mackay@ucl.ac.uk	020 8138 7841	209
Ademola Odunsi	a.odunsi@ucl.ac.uk	020 3987 2377	209
Justin Siefker	justin.siefker@ucl.ac.uk	020 8138 7839	209
Yang Lan	yang.lan@ucl.ac.uk	020 8138 7837	221
Eva Sorensen	e.sorensen@ucl.ac.uk	020 7679 3802	229
Stefan Guldin	s.guldin@ucl.ac.uk	020 7679 2412	302
Vivek Dua	v.dua@ucl.ac.uk	020 7679 0002	313
Matteo Salvalaglio	m.salvalaglio@ucl.ac.uk	020 7679 3716	210B
Ami Shah	ami.r.shah@ucl.ac.uk	020 3108 5339	UB5
Solomon Bawa	solomon.bawa.18@ucl.ac.uk	02031082379	

6.5 FIRST AID BOX LOCATIONS

Roberts Building:

Outside room 303D | 3rd floor kitchen (310S)

Outside room 205A | Connecting room between 220 & 224 | 2nd floor kitchen (228)

Outside UB9 | Outside UB15

LB13 | Outside LB19 | LB21

Lab 15, Second Floor, South Wing

Main Quad Popup Lab, First Floor Lab 101

40 Bernard St: 3rd floor, Chem Eng main kitchen

6.6 UNION APPOINTED HEALTH AND SAFETY REPRESENTATIVES

Up to date representatives can be found in the link below:

<https://www.ucl.ac.uk/governancecompliance/committees/workhealthandsafetycommittee/workhealthandsafetycommitteemembership>