

Central Teaching Laboratory

Laboratory Manual

12 Oct 2020

Version 2



The protocols outlined are subject to change in line with government guidance on keeping everyone safe on campus. Please ensure that you refer to the latest version of the manual.

Important Safety Notices

There have been many changes to this manual since academic year 2019/20 to help us in our attempt to deliver a COVID secure environment. We encourage all users of the CTL to review this document and ensure that they understand the changes we have introduced to try to keep us all safe.

You are expected to read and adhere to the lab safety behaviour outlined in this manual.

All accidents must be reported to the laboratory supervisor or technician who will take the necessary action.

You have a responsibility to report any unsafe behaviour to the laboratory staff so that they may take the appropriate action.

All the laboratories have multiple uses and chemicals, bones, soil and other contaminants may have been used on the benches. Hence Under no circumstances is food or drink permitted in the laboratories or GFlex, including water and chewing gum. Anyone found eating or drinking (this includes having bottles/food on the bench) will be asked to leave.

TO CONTACT THE EMERGENCY SERVICES:

- **Using an internal telephone dial 2222**
 - **From a personal mobile dial
01517942222**

Evacuation of the CTL

If the fire alarm sounds, or you are asked to evacuate the building for any other reason:

- **If possible, turn off hot plates/water baths/gas** - but do not put yourself at risk
- **Leave the lab** - do not stop to collect personal belongings from lockers
- **Use the nearest fire stairwell (located at each end of the atrium and behind the lifts)** you may also use the central staircase. You do not need to follow the one-way system.
- **Doors on fire stairwells close automatically when the alarm sounds** - just push to open
- **You will also be able to leave the CTL through the doors to the lecture theatre Block.**
- **Proceed to the ground floor and leave by the fire exit at the bottom of the stairs.** Do not enter the atrium unless told to do so
- **Wait by the Chadwick building, away from the CTL**
- **Do not re-enter the CTL until you are told it is safe to do so**

If you have a disability that would impede your evacuation of the lab, please inform a member of the technical staff.

Who we are and what the building provides

The CTL is designed to support specialist teaching in a variety of degree programmes including physics, earth and ocean sciences, geography, chemistry and archaeology.

The ground floor primarily provides space, equipment and technical expertise for physics-based practicals. The first floor provides space, equipment and technical expertise for the environmental sciences and archaeology practicals. The second floor provides space, equipment and technical expertise for chemistry-based practicals.

The computer room on the first floor is colour coded denoting reserved areas as shown on your timetable. When not used for a teaching session the space may be available for drop-in access. Please be aware that if you sit in a reserved area you will be asked to move. Networked printers suitable for scanning and for black and white and colour A4 and A3 printing are available on the first floor.

For academic year 2020/21 social space on the ground floor and first floor atriums and the adjacent lecture block is severely limited. We will restore this important social space as soon as possible.

Building opening times and access arrangements

The CTL is open between 9.00am and 5.30pm but you should not enter the building unless you have a timetabled activity in the building. All students should arrive promptly for their laboratory sessions, but we strongly recommend that you arrive no earlier than 15 minutes before your session is due to start as you may end up waiting in the rain.

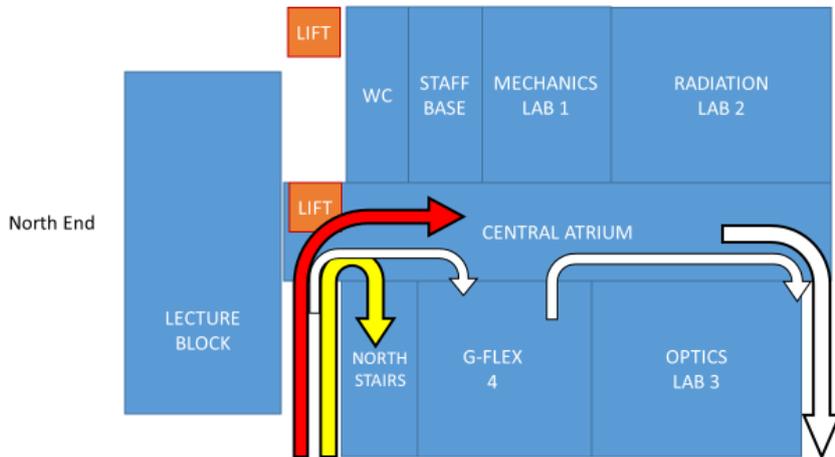
The CTL building will operate using a one-way system. The only entrance to the building is through the main door near the lecture theatre block. The main exit is via the fire exit at the south end of the building. There will be no access to or from the lecture theatre block on either the ground or the first floor.

The use of the passenger lift is restricted to those with mobility issues. If this applies to you please contact the laboratory manager, Steve Chappell, (schapp@liverpool.ac.uk) as we may need to confirm your exit route from the building.

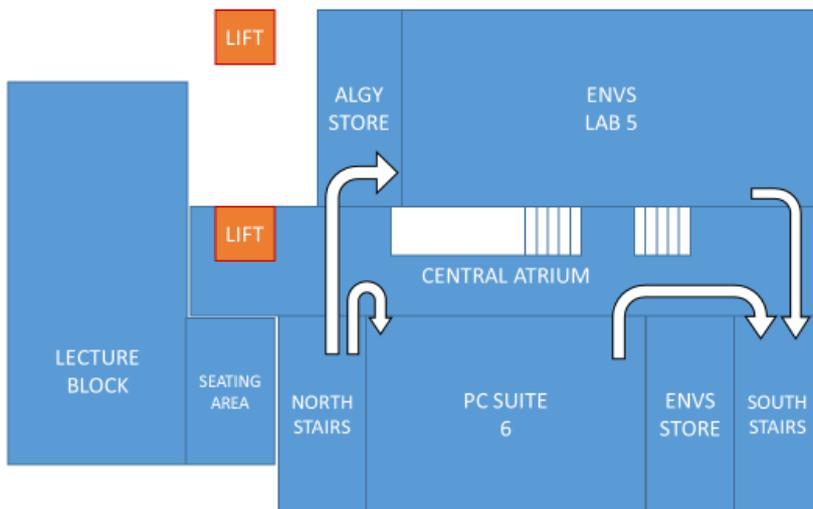
There is a well labelled one-way system on each floor. Where possible you should keep to the **left** on all corridors around the building. Signage has been placed at regular intervals to remind users. Extra care should be taken in narrow corridors (such as those by the toilets and those between laboratories on the 2nd floor), where you should always give way if there is already a person in this space.

Simplified Movement Flows

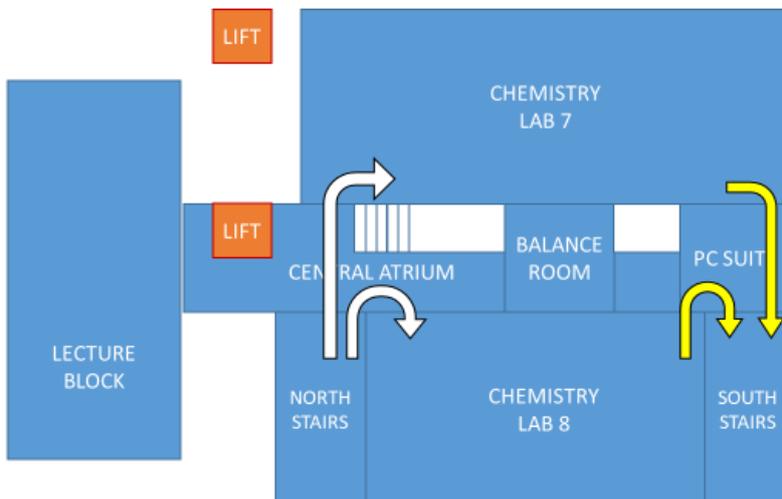
CTL Movement Flow Ground Floor



CTL Movement Flow First Floor



CTL Movement Flow Second Floor



Expectations of behaviour

You are expected to wear a face-covering throughout the CTL unless advised otherwise. If you are unable to wear a face mask, we strongly recommend that you demonstrate this by wearing a lanyard or badge such as those provided by <https://hiddendisabilitiesstore.com/>

Laboratory time has been severely restricted for all students in academic year 2020/21 and so it is important that you make the most of the time you have been allocated. If you arrive early for a laboratory class, you may have to wait outside the building; if you arrive late, we cannot guarantee you access.

Please come to each session well prepared and ready to work. If available, read the lab script and complete any pre-lab exercises beforehand. If required for your course, please bring all necessary equipment with you, e.g. calculator, compass, hand lens, safety glasses.

For 2020/21 lockers are only available for students working on the second floor. Students working on this floor will be allocated a locker; it is important that you only use the locker that you have been assigned. Students using laboratories on the ground and first floors will be asked to take their personal belongings into the labs.

Please wear appropriate shoes (flat shoes that cover your feet) and clothing (covering your legs and arms) for working in a laboratory, and for your own safety, have loose hair tied back. You should always wear any PPE as directed by the academic staff running your class.

On arrival at your laboratory please enter and go directly to your allocated workspace. You must not start work until told it is safe to do so by a demonstrator. Hand sanitising units can be found at the doors of all laboratories; do not forget to use them.

You are responsible for ensuring that your workspace is safe to work at. On arrival you must follow the instructions about how to clean your space before you start work, and before you depart, you must leave it clean and tidy. Detailed instructions will be provided by the academic staff running your class; it is important that you follow them.

If you are accessing shared equipment or resources, you must clean your hands before and after use.

Academic staff and postgraduate demonstrators are in the laboratory to ensure that safe procedures are followed and to give help and advice. They will help if you are having difficulty setting up or using apparatus and discuss any questions you may have.

If your class is timetabled for the whole day, lunch and short breaks should be taken as agreed with the member of academic staff in charge.

Always exercise common sense when in the laboratory.

What to if you find a fire

In the event of you finding a fire warn others in the vicinity and leave the building by the nearest emergency exit. **DO NOT** enter other rooms or collect your belongings from lockers on your way out.

In the event of a fire you should use the nearest exit, even if it is normally designated as entrance only. In the event of a fire all automatic fire doors will shut, and the doors linking the CTL to the lecture-theatre block will open.

If it is safe to do so, please sound one of the alarms located at the emergency exits as you leave the building. If it is not safe to do so, contact the security via a mobile telephone (0151 794 2222) or from the nearest safe building (2222).

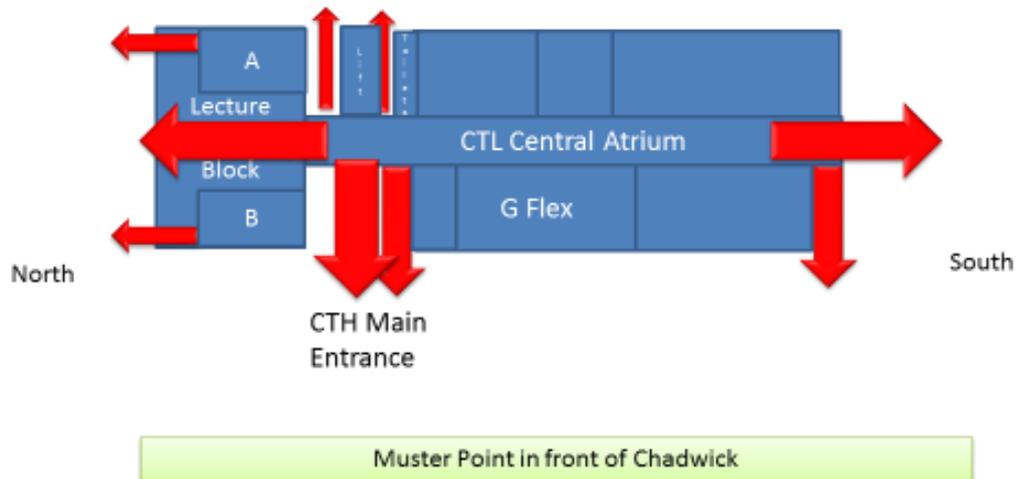
Go to the fire evacuation point – the tree-lined Avenue and stand on the Chadwick side listen for announcements made by the building manager or senior fire officer. The CTL staff will act as fire wardens and will be identified by high visibility jackets. **YOU MUST** contact them **IMMEDIATELY** at the fire evacuation point with details of the fire.

Fire alarms: The fire alarms are connected to the lecture block. They are usually tested on a Wednesday at 1.30pm. There will be 2 alarm tests, one for CTL and one for lecture block and should last no more than 30secs per alarm.

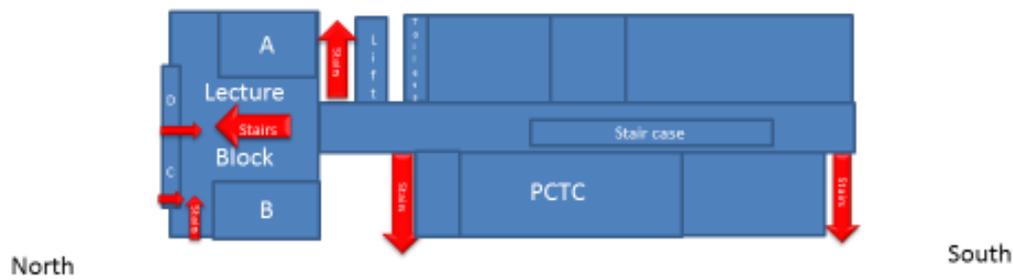
If there is a fire in the CTL building or the lecture block, the alarm will sound continuously and you should evacuate the building immediately by the nearest emergency exit and go to the fire evacuation point on Tree Lined Avenue and stand on the Chadwick side. Remember to maintain social distancing when waiting to return to the building.

Fire Evacuation Routes

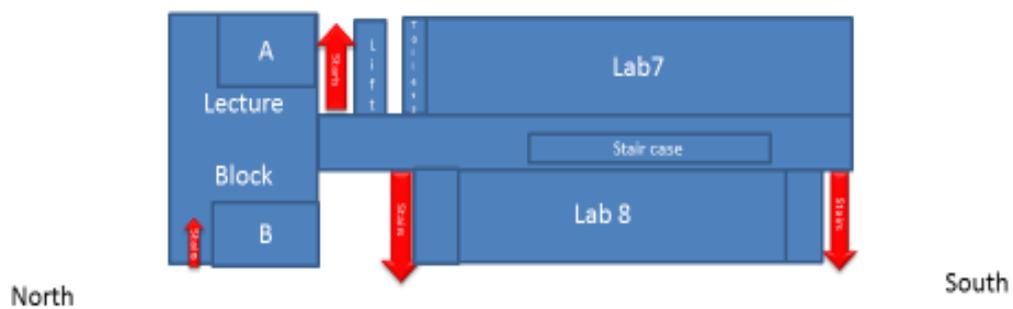
CTH Ground Floor



CTH 1st Floor



CTH 2nd Floor



Accidents

Accidents and near misses **MUST** be reported to the senior laboratory technician or academic member of staff **IMMEDIATELY**. You may need to provide specific details, especially if an injury has been sustained.

What to do if you require first aid

Most of the technicians and many of the academics who work in the CTL have received training for first aid. If you, or a fellow student, require first aid support you should contact your nearest technician. A defibrillator is housed in the building managers office on the ground floor.

Using Chemicals in the CTL

All chemicals used in the laboratories will have a COSHH record. They are available in the laboratories and where necessary you will be directed to them by academic and technical staff. You must understand and follow the COSHH assessment for any chemicals you use in the building. Any problems with the COSHH assessments should be referred to Cate Cropper in the first instance.

Risk Assessments

In addition to a risk assessment for the building and for the individual laboratories, there must be a risk assessment for every experiment undertaken in the CTL. You may have to complete the risk assessment yourself or someone may have completed it for you. You must understand and follow the conditions identified in the relevant risk assessment for any activity you undertake in the building.

Safe Operating Procedures.

SOPs are provided for all of the equipment used in the laboratories. You must understand and follow the SOP for any of the equipment you use in the building. As many of these have changed since academic year 2019/20 it is important that refresh your understanding.

In particular

- Do not operate any apparatus unless you have been given permission to do so.
- Ask a member of academic staff, demonstrator or a laboratory technician if you are unsure about adequate handling of equipment or the correct experimental procedure
- Sanitise your hands before and after using any piece of equipment.
- Clean the equipment before and after use
- Observe social distancing at all times when accessing shared equipment.

Specific Guidance for the Ground floor Teaching Labs

If you are student and have any queries, please contact your module leader.

Staff should contact either Helen Vaughan (hlnvghn@liverpool.ac.uk) or the relevant laboratory technician

- Personal belongings should be brought into the lab and stored in the designated place under your desk.
- **Food and drink must never be brought into or consumed in the laboratory (other than when stored in bags in the designated area).**
- **Earphones must not be worn in the laboratory and mobile phones must be switched off.**
- You should remain at your allocated bench space as much as possible and minimize your movement around the laboratory.
- Wear gloves when working with lead and wash your hands before leaving the lab to eat. Dispose of gloves in the correct bin.
- Do not touch any radioactive sources or remove them from the protective casing.
- All radioactive sources must be returned to and registered with the technician before you leave the laboratory. If an experiment is to be left overnight, you must make arrangements with the laboratory technicians.
- Remove all jewellery on your hands and wrists (especially rings, watches, bracelets) when working with lasers and other bright light sources.
- Beams and reflections from lasers should be contained within the edges of the bench. Ensure you use adequate shields to stop the beam.
- Use the torches or red light provided when moving around the dark room.
- Wear flat, closed toes shoes when working with cryogenics.
- Always wear appropriate gloves when handling hot or cold items such as cryogenics and hot glassware.
- You are required to follow all safety instructions in practical manuals and be aware of the risk assessment where this is provided.
- Any breakages or malfunction of equipment must be reported to the laboratory technician. Do not use any broken glassware or faulty equipment.
- You must report all accidents, however trivial, to a demonstrator or lab technician.

- You must keep your bench space and communal areas clean and tidy and free from spillages. Consult a demonstrator or laboratory technician in case of spills.
- At the end of the laboratory session, please return your work space to how it was when you arrived and log off from PCs.
- For the session 2020-21 there will be additional instructions regarding cleaning before and after you handle equipment and samples. These will be provided by your module leader and it is essential that these are followed.

Specific guidance for the First floor Teaching Lab

If you are student and have any queries, please contact your module leader.

Staff should contact either Elisabeth Rushworth (lisrush@liverpool.ac.uk) or the relevant laboratory technician

- **Personal belongings should be brought into the lab and stored under the desk.**
- **Food and drink must never be brought into or consumed in the laboratory** (other than when stored in bags in the designated area).
- **Earphones must not be worn in the laboratory and mobile phones must be switched off.**
- You are required to follow all safety instructions in practical manuals and be aware of the risk assessment where this is provided.
- You must keep your bench space and communal areas clean and tidy and free from spillages. Consult a demonstrator or laboratory technician in case of spills.
- You should remain at your allocated bench space as much as possible and minimize your movement around the laboratory.
- Any breakages or malfunction of equipment must be reported to the laboratory technician. Do not use any broken glassware or faulty equipment.
- You must report all accidents, however trivial, to a demonstrator or lab technician.
- Do not operate any equipment you are not familiar with. Ask a demonstrator if you are unsure about adequate handling of equipment or the correct experimental procedure.
- Wear either green rubber gloves or PVC gloves when handling hazardous chemicals.
- Always consult a demonstrator or lab technician if you have any queries.
- Follow any additional instructions regarding cleaning before and after you handle equipment and samples. These will be provided by your module leader and it is essential that these are followed.

Specific Information for the First floor computing lab

- More than half of the computers in this laboratory will only be available for remote access. If you wish to use a PC you should only use a computer that has a keyboard attached to it.
- Social distancing must be maintained at all time; one person per computer only.
- The computer lab will only be available for drop-in activity if there is no class timetabled in the room – even if there are still some vacant unoccupied computers.
- Food and drink must never be brought into or consumed in the laboratory.
- You must follow all instructions regarding the cleaning of computers, keyboards, mice, and seating before and after use of a PC in this laboratory. These instructions will be found next to an available PC.
- If you wish to print, you must follow all cleaning instructions that can be found next to any of the networked printers.

Specific Information for the Second floor labs

If you are student and have any queries, please contact your module leader.

Staff should contact either Cate Cropper (ccropper@liverpool.ac.uk) or the relevant laboratory technician

- A laboratory coat, a non-absorbant, disposable face mask and safety glasses/overspecs must be worn at all times in the second-floor laboratories. Light-weight visors are also available if you wish to wear them.
- Face shields or visors must be worn if you cannot wear a face mask.
- You will be allocated a locker in the CTL to use. You must only use your allocated locker. You can leave your possessions in this locker overnight, if you have a lab class the following day.
- You should not wear washable face-masks in the Chemistry laboratories.
- You must bring your own (clean) lab coat, safety glasses and visor to each session. If you do not have a lab coat or safety glasses you will be turned away from the practical class.
- **Food and drink must never be brought into or consumed in the laboratory.**
- **Earphones must not be worn in the laboratory and mobile phones must be switched off.**
- You should remain at your allocated bench space as much as possible and minimize your movement around the laboratory.
- Lab scripts exist for each experiment. You are required to follow all safety instructions in these scripts.
- You must keep your bench space and communal areas clean and tidy and free from spillages. Consult a demonstrator in case of spilled chemicals and solutions.
- Any breakages of apparatus must be reported to the laboratory technician. Do not use any broken glassware or faulty apparatus.
- You must report all accidents, however trivial, to a demonstrator or lab technician.
- All storage containers for samples and chemicals must be properly and securely labelled. The label should be waterproof and must contain your name, the date and the name or structure of the compound.

- Experiments must not be left unattended unless specific arrangements have been made with the laboratory technician. If an experiment is to be left overnight, you must complete an overnight form.
- Do not operate any apparatus you are not familiar with. Ask a demonstrator if you are unsure about adequate handling of equipment or the correct experimental procedure.
- Always wear appropriate gloves when handling hot or cold items such as cryogenics and hot glassware.
- Always consult a demonstrator or lab Technician if you have any queries.
- For the session 2020-21 there will be additional instructions regarding cleaning before and after you handle equipment and samples. These will be provided by your module leader and it is essential that these are followed.
- **A limited number of PCs are available on the 2nd floor for lab users to access. You must remove your lab coat before you sit down.** Social distancing must be maintained at all time; one person per computer only.

Contacts

Floor	Space Ref	Phone Number	Name	Room
Ground	G/019	(015179) 59721		Sick bay
Ground	G/020	07807106773		Building manager
Ground	G/020	(015179) 59737	Steve Chappell	CTL Supervisor
Ground	G024	(015179) 58151	Connor Richards	Radiation Lab
Ground	G/040	(015179) 59723	Marc Dunn	Electronics/optics lab
Ground	G/042			G Flex
Ground		(015179) 51003	Helen Vaughan	Academic
First	1/013	(015179) 59725		Archaeology inner lab
First	1/020	(015179) 59726	Sandra Collins	Environmental science tech base
First	1/011	(015179) 59724	Katie Lamb	Environmental science tech base
First	1/029	(015179) 59738	Josh Hicks	PC teaching centre
First	1/030	(015179) 59736	Paul Fargin	PC teaching centre
First		(015179) 51001	Elisabeth Rushworth	Academic
Second	2/024	(015179) 59732	Ann Leyden	General lab
Second	2/011	(015179) 59739	Lynne Chapman	High service lab
Second	2/024	(015179) 59732	Christine Maloney	General lab
Second	2/011	(015179) 59739	Emma Coates	High Service Lab
Second		(015179) 51002	Cate Cropper	Academic

TO CONTACT THE EMERGENCY SERVICES:

- Using an internal telephone dial 2222
 - From a personal mobile dial
01517942222