Royal Holloway University of London
Department of Geography

Laboratory Operating Systems, Policies and Procedures

1 Laboratory Supervision

1.1 Division of Laboratory Facilities

In order that the labs run smoothly, individual laboratory technicians are responsible for the running of specific lab areas. The breakdown is as follows:

Queens

QB102	Sample Reception Laboratory	Marta Perez
QB103	Sediment Description Laboratory	Adrian Palmer
QB104	Furnace Room	Katy Flowers
QB105	Wet Sieving Laboratory	Marta Perez
QB106	Sample Store & Dry Sieving	Adrian Palmer
QB107	Palaeoecology Laboratory	Marta Perez
QB110	Thin Section Laboratory	Adrian Palmer
QB111	Gelling Room	Adrian Palmer
QB112	Machine Room	Adrian Palmer
QB113	Microscope Laboratory	Marta Perez/Katy Flowers
QB128	Image Analysis Suite	Adrian Palmer
QB133	Laminar Flow Room	Marta Perez
QB134	Instrument Particle Size Analysis	Adrian Palmer
QB135	Clean Laboratory	Marta Perez

Geochronology Suite

GE001	Geochronology Main Laboratory	Iñaki Valcarcel
GE002	Geochronology Dry Dark Laboratory	Iñaki Valcarcel
GE003	Geochronology Wet Dark Laboratory	Iñaki Valcarcel
GE004	Riso Laboratory	Iñaki Valcarcel
GE005	Geochronology Store	Iñaki Valcarcel
GE006	Tephrochronology Laboratory	Katy Flowers

Munro Fox

MF010	Munro Fox Teaching Laboratory	Iñaki Valcarcel
MF005	Preparation Laboratory	Iñaki Valcarcel
MF006	Instrument Laboratory	Iñaki Valcarcel

Stores

QB126	Central Stores (consumables)	Marta Perez
Container	Field Store	Marta Perez/Katy Flowers
	Cylinder Stores	Iñaki Valcarcel
ECS	External cold store	Marta Perez

1.2 Laboratory Supervisors' Responsibilities

1.2.1 The laboratory technicians are responsible for supervising the areas outlined above. This involves the following:

(a) Maintaining stocks of area specific chemicals and consumables, and preparing internal order forms
(b) Maintaining equipment in a clean and working order
(c) Ensuring laboratory users keep work areas clean and tidy
(d) Ensuring that health and safety policies are adhered to
(e) Ensuring induction and training logs are up-to-date and complete
(f) Maintaining booking systems as necessary for laboratory space, equipment, consumables and stores.
(g) Supervising laboratory users as necessary to ensure good working practices are maintained
(h) To ensure that quality control practices are followed
(i) To advise on purchases of capital equipment
(j) Ensuring PPE is available and in efficient working order

1.2.2 There are overlaps between the various disciplines so technicians supervising students, or training staff in techniques will use areas not directly under their remit. In this case their responsibilities are:

(a) To ensure the supervisee receives the correct health and safety training for their techniques
(b) To ensure the supervisee is aware of good working practices
(c) To assist in ensuring that health and safety policies are adhered to in that area.
(d) To implement the quality control policy for specific techniques.

1.2.3 Specialist Equipment

There are a number of specialist items of equipment. These are generally technique specific, and will be maintained / operated by the technician(s) with the training / background in the relevant techniques.

2 Opening Hours

For Lone Working guidance, see Health and Safety section

The laboratories will be open to staff and students as follows:

Monday to Friday	09:00 – 16:50
Sat, Sun, Bank, Public & College Holidays	Closed

The Technical Operations Manager reserves the right to close a laboratory or lab suite on safety grounds in the event there are not adequate numbers of supervising or first aid trained staff present.

Teaching Laboratories will open as necessary to accommodate the timetable.

3 Health and Safety

This section is written in addition to, and supplementing, any college or Departmental Health and Safety Policies and Procedures.

3.1 In law every person has a duty of care to themselves and others, whether or not they are at work. Legislation extends and enhances this duty further in workplaces.

3.2 Female workers working with hazardous CoSHH regulated substances and ionising radiation or in any laboratory areas need to declare their pregnancy and whether they are breastfeeding as soon as possible. Under this duty of care you are asked that if you are or intend to become pregnant you contact the Health and Safety coordinator in confidence. A risk assessment of the work program will be carried out with the individual.

3.3 All staff, students, contractors and visitors are obliged under health and safety legislation, together with College regulations, to follow all policies and procedures relating to health and safety.

Anyone who persistently or deliberately breaches health and safety regulations will be banned from the labs.

Significant health and safety infringements may also lead to College disciplinary action, and/or criminal prosecutions.

3.4 Working Hours

Are defined in section 2

3.5 Out of Hours Work

The laboratories are designated as Minimal, Moderate and Multiple hazard or Radiation restricted areas, depending on the work which is carried out in them.

Any work involving use of any CoSHH regulated substances is not permitted outside of the hours 9am-1pm / 2pm-5pm.

3.5.1 All out of hours work must be agreed with the laboratory-supervising member of staff, irrespective of the risk involved. In their absence, workers should approach the Technical Operations Manager or their Deputy.

The risk assessment documentation must be consulted for guidance on out-of-hours working – some techniques are not permitted.

The table below shows who can or cannot carry out out-of-hours work and in which circumstances.

	Minimal hazard	Moderate hazard		Multi-hazard	Radiation restricted
Staff	Y	Y		D2	DR
PhD / MPhil	Y	Y	O/H=2	**N**	**N**
Masters	Y	D2		**N**	**N**
Undergrads	**N**	**N**		**N**	**N**
Visiting Staff	D	D2		**N**	**N**
Other visitors	2	2		**N**	**N**

Y = Yes N = No 2 = two person rule O/H out of hours
R = radiation workers only D = at discretion of Technical Operations Manager

Rooms have been classified as follows:

	ROOM
Minimal hazard laboratories	QB102, QB103, QB106, QB107, QB113, QB128 GE001*, GE002*, GE005*
Moderate hazard laboratories	QB104, QB105, QB110 GE006* MF010, ECS
Multi-hazard laboratories	QB111, QB112, QB133, QB134, QB135 GE003, MF005, MF006
Radiation Risk	GE004

*As a result of its location this room should be classified as a Multi-hazard laboratory for out of hours working.

The classification is based on the risk assessments of each specific area.
In order to prevent unauthorised access, the rooms have lock suites to allow access accordingly out-of-hours.

If working outside of normal hours (9am-5pm Mon-Fri) <u>anywhere</u> in the department, please call security (ext. 3063) on arrival and departure from the building.

No one may work in any laboratory facility after 10pm or before 7am, irrespective of which day it is.

3.6 <u>Two Person Rule</u>
Where it is identified that work may be carried out using a 2 person rule, the following will apply:

3.6.1 The second person must be competent in working in the specific laboratory environment

3.6.2 The second person must be aware of the working processes involved, and any emergency procedures

3.6.3 Each person should be within earshot of the other, if not in sight of each other

3.6.4 The second person should not be at the same risk of injury as the primary worker i.e. only one person should be carrying out the higher risk work, though the other person could be carrying out low hazard work.

3.7 Lone Working

Lone working can be defined by working in isolated locations in the department and/or working out of hours with no supervision.
This work undertaken increases the risk of harm to the lone worker by risks associated with the work itself or the absence of on-hand support should something go wrong.
The supervising technician will discuss in advance any necessary lone working associated with your project; this is also stated in the associated risk assessment documents.
You will be supervised if necessary until the technician is satisfied you have received the information, instruction, and training and have gained the proficiency to work safely alone and will sign the training log accordingly.

Unsupervised work by undergraduates in the laboratories is not permitted.

The college policy on lone-working is available from the Departmental Health and Safety officer – you may be asked to sign an approval form.

3.8 Dress Code

There is a laboratory dress code that applies to all laboratories, except in certain areas as identified below.

Supervising staff may enforce the dress code even in the "exceptions", if circumstances so dictate.

3.8.1 Lab coats to be worn at all times and *fastened*, except:

(a) Palaeoecology Lab QB107
(b) Microscope Lab QB113
(c) Non-chemical consumables store QB126
(d) Image Analysis Suite QB128, *if using microscopes only*
(e) Field Store (though for the sake of protecting your ordinary clothes from dirt or damage it is recommended)
(f) Munro Fox teaching lab, *when being used for non-laboratory based lectures.*

3.8.2 Shoes must be non-slip, closed toe, top & back, and preferably of non-porous material

3.8.3 Legs must be fully covered. Material of covering is preferably cotton or cotton polyester mix.

Exceptions: (a) Microscope lab QB113
(b) Image Analysis Suite QB128, *if using microscopes only*
(b) Munro Fox Teaching lab, *when being used for non-laboratory based lectures.*

3.8.4 You must not wear trousers, skirts, or dresses which are so long as to constitute a trip hazard.

3.8.5 **You must not wear lab coats in any area where food or drink is prepared or consumed.**

3.9 Induction

Health and safety induction for the labs will be carried out as follows:

3.9.1 The Departmental Health and Safety Coordinator will give an overview of laboratory safety at:

- staff induction
- post graduate and undergraduate induction meetings at the start of each academic year

3.9.2 The Laboratory Supervisor will induct each new worker in the health and safety for that particular lab. This is a general overview of that area, including health and safety; CoSHH assessments, general risk assessments and related procedures within that lab, but may not at the initial stage be technique specific.

3.9.3 The technician supervising or training a new laboratory user in a technique; or an existing user in a new technique, will detail the health and safety procedures specific to that procedure, including CoSHH legislation, safety data sheets and risk assessments prior to beginning work.

3.9.4 Equipment will only be issued to those that the supervising laboratory technician deem competent.

3.9.5 Any person who consistently breaks health and safety protocols will be required to re-attend a full set of inductions before being allowed back into a lab.

3.9.6 Health and safety inductions will be recorded.

3.10 Record Keeping

3.10.1 Copies of all risk assessment forms, including CoSHH and general risk assessments will be kept in each lab where the chemical is used, or the procedure is carried out.
3.10.2 Copies of Manufacturers Safety Data Sheets will be kept with each CoSHH assessment.
3.10.3 Training records will be kept in the Departmental Health and Safety coordinators (DHSC) office or technician's office where appropriate.
3.10.4 Central copies of all active safety records will be kept in the DHSC's office.
3.10.5 Central records will be kept for a minimum of 4 years from the date the procedure is stopped, a chemical is no longer used and no stock is kept, and after a person has left the department.

3.11 Control Measures and Personal Protective Equipment (PPE)

3.11.1 Control measures are provided to limit exposure to hazardous chemicals and equipment, including, as a last resort, PPE.
3.11.2 Whenever new laboratory equipment is to be purchased every effort should be made to ensure the acquired product meets suitable specifications with regards to safety features, noise levels, vibration levels etc.
3.11.3 All, staff, students, visitors etc are expected to use the control measures and PPE identified in risk assessments, in procedural documents, CoSHH assessments, by signs, or as by directed by a supervising member of staff.
3.11.4 Laboratory technicians are responsible for monitoring the use of PPE and have the authority to refuse laboratory access to those not suitably protected.
3.11.5 All workers must visually inspect any PPE required before use. Damaged PPE should be reported immediately to the Laboratory Supervisor or Technical Operations Manager.
3.11.6 All PPE must be correctly stored when not in use.
3.11.7 Any damaged PPE must be disposed of immediately and replacements ordered.
3.11.8 CoSHH assessments are carried out on all substances before being used. Purchases of new substances will only be approved by the Technical Operations Manager once a CoSHH assessment has been carried out.
3.11.9 Failure of any machine components or machine safety guards should be reported immediately to the Lab manager and/or Technical Operations Manager.

3.12 General health and safety

3.12.1 In all labs there is no eating, drinking or smoking, nor should food or drink be taken into labs

3.12.2 No mobile phones should be used in labs, chemical contamination from your hands or on benches could be transferred to your ear / head.

3.12.3 Personal music players may be used in low risk labs, & in other areas the lab radio may be on, but with the agreement with all users, and not at a level that distracts workers

3.12.4 No visual distractions may be used in any lab, such as televisions, DVD's, video material on laptops, except as deemed necessary for teaching.

3.12.5 No bags or coats etc should be taken into labs.

3.12.6 All walkways and doorways must be kept clear of obstructions

3.12.7 No running in laboratories

3.12.8 No irresponsible behaviour

3.12.9 All spillages of hazardous material should be reported to a supervising member of staff.

3.12.10 Labelling of chemical mixes (i.e. 10% hydrochloric acid or dispersants) and samples etc is imperative to ensure that there are no accidents with unknown substances. This labelling must include:

(a) Contents of container

(b) Hazard (e.g. toxic, flammable, corrosive etc), either in writing or with the use of a relevant symbol

(c) If to be left more than a day it should also include name and date & "Please leave until *date*"

3.12.11 You must not distract users carrying out hazardous procedures.

3.12.12 Where warning lights are used outside laboratories please observe them and avoid entering while in use. If you need to enter knock and wait for permission from the lab user inside.

3.13 Only staff and students who have been trained in a procedure or in how to operate equipment may carry out that procedure. There are many non-chemical hazards in a lab, which through misuse could lead to serious accidents, and/or seriously damage equipment.

3.14 Only supervising laboratory technicians may issue chemicals, change gas cylinders, adjust regulators, set up instruments etc

3.15 **IN CONCLUSION, IF IN DOUBT ASK!**

4 Good Working Practice

For the laboratories to run successfully it is vital that good practice is used at all times.

4.1 All workers must keep and leave their work areas clean and tidy
4.2 All workers are responsible for ensuring that the glassware and equipment they use is cleaned properly. As part of their induction to labs workers are trained in the correct methods of cleaning equipment.
4.3 All workers are required to adhere to the health and safety policies.
4.4 Anyone who persistently refuses to maintain a clean and tidy working environment may have their access to labs restricted.
4.5 It is polite to ensure that as you use consumables that the supervising technicians are kept informed of its use, especially when stock is low.
4.6 All workers must follow all instructions issued by supervising staff.
4.7 Always ensure that you arrange times of work in advance with the supervising staff. It is particularly important that you book staff time with them directly, and book time on equipment as necessary.

5 Sanctions

5.1 Anyone breaking the laboratory rules in this document will be asked to correct their conduct
5.2 If they persist in breaking the rules then the supervising technician will ask the Technical Operations Manager to issue an informal warning. This will be a written and recorded warning, which will stay between the offender, the supervising technician and the T.O.M.
5.3 After two informal warnings, a formal warning will be issued, in the form of a written warning copied to the person's supervisor.
5.4 If after the formal warning the person persists in breaking the rules, then the Technical Operations Manager reserves the right to restrict that person from the labs for a period of not less than one working week. The conditions of the suspension will be spelt out in a written notice. For more serious offences this might be extended.
5.5 Anyone who has been suspended from the labs will be required to undergo a retraining session with either the Technical Operations Manager or the supervising technical staff.

6 Quality Control

In order to assist in maintaining the department's high standing in research, and as a contractor to 3rd parties, Quality controls must be carried out to ensure the integrity of research, contractual work etc.

6.1 Each laboratory supervisor will put in place Quality Control appropriate to the techniques used in that lab.