

Hazard code	HAZARD TYPE	✓	GENERAL HAZARD DESCRIPTION AND/OR CONTROLS TO BE PUT INTO PLACE	PROBABILITY	SEVERITY	TOTAL SCORE
1.0	Location					
1.1	Lone working within building	✓	Emergency checking arrangement has been withdrawn by security staff. Hazardous work in the laboratory areas is forbidden when lone working in the building.	3	3	9
1.2	Lone working away from base					
1.3	Group working away from base					
1.4	Remote location					
1.5	Party/visit/placement					
1.6	Fieldwork/sports trip					
1.7	Working/Travelling Overseas					
1.8	Other					
2.0	Physical Hazards					
2.1	Poor housekeeping					
2.2	Spillages/wet floor	✓	A lot of water is used in the laboratory areas – but anti-slip flooring is provided. The lobby area is very slippery when wet – cleaner washes/dries floor before most staff arrive & puts out warning signs. Residual hazard during wet weather.	3	3	9
2.3	Worn/damaged flooring					
2.4	Uneven surfaces					
2.5	Falls (consider falls from any height)	✓	Staircase to/from first floor – but steps and noses maintained in good condition. High shelving – particularly in the laboratory store. Lighter items stored on highest shelves and step ladders provided.	3	3	9
2.6	Contact with static object	✓	Nothing stands out as being badly sited – but the laboratories contain a lot of furniture and equipment.	3	2	6
2.7	Contact with moving object					
2.8	Needle sticks or sharp objects	✓	Scalpels, hypodermic needles and glassware are commonly used in the laboratory areas. Access to the area is controlled. Rigid biohazard containers are provided for disposal of scalpels, needles and other contaminated sharps. Glass disposal boxes are provided for damaged glassware.	3	3	9
2.9	Extreme cold/low temperature	✓	Liquid nitrogen is commonly used in parts of the laboratory. Access to the laboratory is controlled. Thermal gloves and eye/face protection is provided.	3	4	12
2.10	Heat or steam					
2.11	Other physical hazard					
3.0	Mechanical Hazards					
3.1	Crushing	✓	Presses, vices and other equipment with crushing potential used in parts of the laboratory.	2	3	6
3.2	Cutting/shearing	✓	Guillotines (properly maintained) and scalpels (trained users) are commonly used in the laboratory areas.	3	2	6
3.3	Entanglement					
3.4	Drawing-in/trapping					
3.5	Impact/ Ejection					
3.6	Use of hand tools	✓	Many types of hand tool are used in laboratory areas.	2	2	4
3.7	Contact with dangerous machinery					
3.8	Other mechanical hazards					
4.0	Electrical Hazards					
4.1	Poor isolation of equipment					

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4.2	Live working low voltage					
4.3	Live working mains voltage					
4.4	Live working, 3 phase					
4.5	Risk of direct contact					
4.6	Risk of indirect contact					
4.7	Portable equipment not inspected					
4.8	Portable equipment not tested					
4.9	Fixed equipment not tested					
4.10	Building Services not tested					
4.11	Overhead/Underground lines/cables					
4.12	High Voltage	✓	High voltage supplies (properly maintained) are used (trained users) in connection with some pieces of laboratory equipment.	3	4	12
4.13	Short circuit/overload					
4.14	Source of ignition					
4.15	Lack of compatibility of voltage e.g. (overseas)					
4.16	Other electrical hazards					
5.0	Radiation Hazards etc.					
5.1	Lasers	✓	Lasers are used (trained users) with the biological confocal microscope.	2	4	8
5.2	Ionising radiation					
5.3	Electro-magnetic/Microwave/UV emitters	✓	Bright UV-vis sources are used in connection with gel reader, fluorescence microscope and spectrometers in laboratory area (controlled access).	3	3	9
5.4	Other radiation hazards					
6.0	Work Practices					
6.1	Highly repetitive actions	✓	Many staff/students spend long periods doing keyboard work at computer workstations.	3	3	9
6.2	Gripping/Squeezing					
6.3	Twisting					
6.4	Reaching/Stressful postures					
6.5	Finger/hand movement					
6.6	Inadequate 'warm-up'					
6.7	Mental strain/stress	✓	Often staff have more work than can be comfortably fitted into a reasonable working week.	3	3	9
6.8	Visual fatigue					
6.9	Inadequate rest breaks					
6.10	Use of display screens	✓	Many staff/students spend long periods at computer workstations.	3	3	9
6.11	Contact with the public/patients					
6.12	Contact with trespassers etc.					
6.13	Out of hours working (consider lone working, first aid and fire warden cover)	✓	Staff/students commonly work outside of core hours (9 – 5). Hazardous work is forbidden when lone working. All staff/students have access to a first-aid box even when a trained first-aider is not present. All LIRANS staff/students are trained in the emergency arrangements.	3	3	9
6.14	Other					
7.0	Lifting/Handling					
7.1	Weight of object (specify weight)	✓	Liquid nitrogen dewars are particularly heavy when full.	3	4	12
7.2	Object not at waist height	✓	Liquid nitrogen dewars are floor standing.	3	4	12
7.3	Unstable object					
7.4	Difficult to hold					
7.5	Outside of own lifting capability					
7.6	Difficult route (doors/steps/people)					
7.7	Poor lighting					
7.8	Poor floor condition					

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7.9	Requires more than one person	✓	Liquid nitrogen dewars are particularly heavy when full.	3	4	12
8.0	Hazardous Substances					
8.1	Harmful/irritant	✓	Harmful/irritant materials are commonly used in the laboratory areas.	3	3	9
8.2	Toxic/corrosive	✓	Toxic/corrosive materials are commonly used in the laboratory areas.	3	4	12
8.3	Extremely/Highly Flammable (see also HIPA 9.0)	✓	Highly flammable materials are commonly used in the laboratory areas.	3	3	9
8.4	Carcinogen, mutagen or teratogen	✓	Carcinogens, mutagens and teratogens are commonly used in the laboratories.	3	4	12
8.5	Explosive/oxidiser (see also HIPA 9.0)	✓	Explosive materials are rarely used in the laboratories – but oxidizing agents are commonly used in the laboratories.	3	3	9
8.6	Flashpoint below 32C (see also HIPA 9.0)	✓				
8.7	Biological hazard group 1	✓	Bacteria and other biological agents are commonly used in the laboratories.	3	2	6
8.8	Biological hazard group 2	✓	Bacteria, blood and blood products are commonly used in parts of the laboratories.	3	4	12
8.9	Biological hazard group 3					
8.10	Pre-existing medical condition e.g. dermatitis/asthma/allergy	✓	One member of staff was suspended from laboratory duties for a period of time (due to a suspected reaction to a particular hand soap).	3	3	9
8.11	Cryogenic substances	✓	Liquid nitrogen is commonly used in parts of the laboratory.	3	4	12
8.12	Genetically modified organisms					
8.13	Dust/smoke or fume					
8.14	Damaged container / open vessel					
8.15	No bunding / drip tray					
8.16	Inappropriate storage					
8.17	Transport of hazardous substances					
8.18	Poor ventilation (general and LEV)	✓	Ventilation in the building was not designed for bio/chemical laboratories – so there is an acute reliance on filter cabinets.	3	4	12
8.19	Poor/lack of labelling					
8.20	No material safety data sheet					
8.21	Other hazards					
9.0	Fire Hazards & systems					
9.1	Storage and use of flammables/ highly flammables	✓	Flammable and highly flammable materials are used and stored in the laboratory areas. Steel cabinets, designed for the purpose are used for storage.	3	4	12
9.2	Storage/use of petroleum spirits					
9.3	Storage/use of combustibles					
9.4	`Hot work` activity	✓	Bunsen burners are sometimes used in laboratory areas. Emergency gas shutoff control needs to be installed.	3	5	15
9.5	Work that produces dust					
9.6	Lack of integrity of escape routes					
9.7	Obstructed escape routes					
9.8	Storage of equipment/combustibles under stairs					
9.9	Lack of knowledge regarding fire arrangements					
9.10	Lack of fire wardens					
9.11	Fire door/final exit locked					
9.12	Absence of fire detector/alarm systems					
9.13	a) Small building					

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9.14	b) Multi storey building	✓	Two-storey building (main staircase and emergency exit from first floor). Alarm system, detectors, fire alarm call-points, fire extinguishers, fire risk assessment in place and LIRANS staff and students trained.	2	4	8
9.15	c) Sleeping accommodation					
9.16	Lack of emergency lighting (relevant if working in an area with lack of or no natural light)					
9.17	Fire escape routes/alarms unsuitable for disabled. (Is there a need to carry out a PEEP?)					
9.18	Multi-storey, no refuges					
9.19	Lack/wrong type extinguishers					
9.20	Fire fighting equipment out of test date					
9.21	Other fire hazards					
10.0	Environmental					
10.1	Poor ventilation/draughts					
10.2	Noise (Local)					
10.3	Noise (Background)					
10.4	Vibration (whole body/Hand-arm vibration)					
10.5	Poor lighting (internal/external)	✓	Lighting (particularly in the laboratory areas) is poor for detail working. Multiple strip lights purchased for spot lighting.	2	2	4
10.6	Lack of facilities to rest and eat meals					
10.7	Lack of available sanitary conveniences/washing facilities					
10.8	Pressure vessels	✓	Bench-top autoclaves (maintenance contract).	2	4	8
10.9	Lack of space/unsuitable position					
10.10	Access/egress unsuitable					
10.11	Area/signage unsuitable for disabled	✓	Fit out of the laboratory areas is not necessarily adequate for disabled persons. A personal risk assessment should be carried out in each case before allowing entry.	1	4	4
10.12	Oxygen deficiency	✓	Sufficient liquid nitrogen is stored to displace all air in the cryobiology laboratory in the event of a series of failures.	2	5	10
10.13	Confined spaces	✓	Sufficient liquid nitrogen is stored to displace all air in the cryobiology laboratory in the event of a series of failures.	2	5	10
10.14	Use of compressed air/gases	✓	Cylinder gases (particularly white spot nitrogen) is used in the laboratory. Cylinder trolleys are used for moving cylinders and bench clamps are used to secure cylinders in place.	3	4	12
10.15	Localised hot/cold surfaces	✓	Extreme hot and cold surfaces are commonly generated within the laboratory areas.	3	3	9
10.16	Insufficient parking spaces					
10.17	Unpredictable environmental condition					
10.18	Activity on or near water					
10.19	Falling objects					
10.20	Rough terrain					
10.21	Hot/cold ambient temperatures					
10.22	Weather conditions/Climate extremes					
10.23	Exposure to sun					
10.24	Equipment or procedures that would 'fail to danger', e.g. ropes					

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10.25	Projectiles, e.g. bullets/arrows/fireworks, etc.					
10.26	Animal/Insect/reptile bites, etc.					
10.27	Contaminated water/food/soil					
10.28	Other environmental hazard	✓	Materials dangerous to the environment are commonly used in the laboratory areas.	3	3	9
11.0	Organisational					
11.1	Excessive demands on individual, e.g. timescales, workload, responsibility	✓	Researching, teaching and other duties can place excessive demands on individuals.	3	4	12
11.2	Lack of control over work by individual					
11.3	Lack of support from colleagues or superiors					
11.4	Poor relationships & unacceptable behaviour					
11.5	Lack of understanding of role					
11.6	Lack of staff engagement in change					
11.7	Poor maintenance (building/equipment)					
11.8	Unsafe systems					
11.9	Unsuitable equipment					
11.10	Staff/supervisors lack competence (formal training, qualifications, experience)					
11.11	Ratio supervisors/participants					
11.12	Lack of instruction/information					
11.13	Unattended activity (out of hours / overnight)					
11.14	Prolonged activity without breaks					
11.15	Group newly formed					
11.16	Participants have differing levels of expertise	✓	Many taught students have very little practical laboratory experience	4	4	16
11.17	Lack of first aid cover					
11.18	Nursing or pregnant mothers					
11.19	Participants under 18 years old	✓	Work experience students may have very little practical laboratory experience	4	3	12
11.20	Hazards associated with overseas travel (see Overseas travel guidance)					
11.21	Frequent organisational change					
11.22	Shift work 'stressors' present					
11.23	Other organisational					
12.0	PPE					
12.1	Lack of/inappropriate provision of PPE					
12.2	Lack of maintenance of PPE					
12.3	Lack of training records					
12.4	Inappropriate storage					
12.5	Lack of health surveillance					
12.6	Other					
13.0	Transport					
	Hazards associated with:					
13.1	Travelling by road		Accident Breakdown Delays Other			
13.2	Travelling by rail		Accident Breakdown Delays Other			
13.3	Travelling by air		Accident Flight delays Other			

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13.4	Off-road travel – remoteness, rough terrain, etc.		Accident Breakdown Time taken for emergency response Other			
13.5	Travelling by ferry/boat, etc.		Accident Delays Other			
13.6	Travelling by other means		Accident Delays Other			