THE UNIVERSITY OF MAURITIUS

SAFETY AND HEALTH MANUAL FOR STUDENT

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DISCLAIMER

This manual is to be used for general guidance only. Its content is intended to provide a summary and overview of health and safety issues. It is not intended to be a procedure manual for every environment. Although efforts have been made to address situations that may result in a hazard in the lab, classroom and field visit, the information and instructions provided cannot be considered as all-inclusive. The diverse types of environment might warrant different and specific approaches to tackle health and safety issues. The manual is not a substitute for specific training or experience.

Students are advised to contact their respective Heads of Department and Dean for proper guidance.

1. INTRODUCTION

All students must read, understand and strictly abide by all the rules/guidelines contained in this document. Effort has been made to address situations that may pose a hazard in the lab, classroom and during field visit, but the information and instructions provided in this document cannot be considered all-inclusive. In addition students must adhere to written and verbal safety instructions that will be released throughout the academic year. Failure to follow safety and health rules may result in disciplinary action.

Students are expected to do their part to ensure a safe laboratory/classroom environment for themselves and others on campus. Careless behaviour in the laboratory, classroom or during field visits can result in serious injury, health hazards and damage to property. Learn to recognize potential hazards, to avoid accidents from happening and to abide by the safety and health rules.

Individuals with medical conditions (e.g. allergies, asthma, pregnancy) may be sensitive to some of the reagents used. It is the individual's responsibility to notify the programme coordinator of any condition that might require special safety precautions.

Working alone and unsupervised in laboratories is forbidden if you are working with hazardous substances or equipment. With prior approval, at least two people should be present so that one can shut down equipment and call for help in the event of an emergency.

2. PURPOSE AND SCOPE

These guidelines are applicable to all UoM students who work in laboratories/workshops, classrooms and when going for field visits. They are also applicable to contractors, visitors and other University affiliates who visit or access University laboratories, classrooms and associated areas.

3. SAFETY RULES FOR LABORATORY, CLASSROOM AND FIELD WORK

(3.1) Personal Safety

The highest priority in the laboratory is personal safety. Therefore students must be sure to:

- Dress properly during laboratory activities - Long hair, loose clothing or dangling jewelry is a hazard in the lab. Long hair must be tied back and loose clothing must be secured. When in the lab, wear Lab coats and wear shoes that completely cover the foot. Sandals are not allowed in the lab.
- Wear eye protection in the laboratory when handling any chemical or biological agents and when working with machines or equipment which may generate flying particles. Safety glasses or goggles are sufficient for most applications.
- Wear protective gloves when handling corrosive chemicals or biological agents. These are not to be worn in non-lab areas. (i.e. remove them before going to the washroom).

(3.2) General laboratory Safety Guidelines

- All UoM Laboratories are signposted with a "No admittance authorized personnel only" notice. You should enter the laboratory only if you have been authorized to do so.
- Never perform unauthorized experiments.
- Never work in the laboratory alone, always have a lab personnel in the area.
- Do not use any equipment unless you are trained and approved as a user by the laboratory personnel or your lecturer. Ask question if you are unaware of how to operate something.
- Check all electrical equipment before you turn the power on. If the apparatus appears defective, call your laboratory technician.
- Do not leave an on-going experiment unattended.
- Always inform your instructor if you break a thermometer. Do not clean mercury yourself.
- Never use open flames in laboratory unless instructed by your laboratory technician.
- Check your glassware for cracks and chips each time before use.
  (Cracks could cause the glassware to fail during use and cause serious injury to you or others).
- Maintain unobstructed access to all exits, fire extinguishers, electrical panels, emergency showers, and eye wash stations.
- Do not use corridors for storage of equipment.
- Do not store heavy items above table height. Any overhead storage of supplies on top of cabinets should be limited to lightweight items only.
- Lab experiment which may generate temporary hazards (i.e. lasers, biohazards, radioisotopes, and carcinogens) should be posted accordingly, by temporary warning signs . However, do not post areas unnecessarily and be sure that the labels are removed when the hazards are no longer present.
- Be careful when lifting heavy objects. Always adopt the principles of kinetic lifting

by keeping the back straight and using the muscles in the leg.

- Clean your lab bench and equipment, and close the door before leaving the laboratory.
- Do not overreach. Keep proper footing and balance at all times.
- Report any unsafe behavior or condition to the lab personnel.
- Never eat and store food in laboratories.
- Always obey the safety signs and notices in labs.
- Report any accident/injury to the lab personnel immediately.

(3.3) Chemical Safety

- Treat every chemical as hazardous.
- Make sure all chemicals are clearly and currently labeled with the substance name, concentration and date.
- Chemicals must be stored in approved storage cabinets (i.e. Flammable and Corrosive cabinets.)
- Comply with fire safety rules concerning storage quantities, types of approved containers and proper labeling.
- Use volatile and flammable compounds only in a fume hood.
- Processes that produce aerosols should be performed in a hood to prevent inhalation of hazardous material.
- Dispose of waste and broken glassware in proper containers.
- Clean up spills immediately. In case of major spillage call the laboratory technician for necessary action.
- Never pipette by mouth; use a device such as a pipettor or a bulb.
- Never taste chemicals.
- Never "smell" a solvent!! Read the label on the solvent bottle to identify its contents.
- Never use the biological safety cabinets as fume hoods.
- Never pour chemicals down the sink without first consulting the Material Safety Data Sheet (MSDS).
- Never return chemicals to reagent bottles. (Try for the correct amount.)
- Never allow a solvent to come in contact with your skin. Always use gloves.
- Do not leave unattended an experiment that is in progress.
- Never eat and store food in laboratories.

When performing experiments,

- Wear appropriate personal protective equipment.
- Read the label before using any reagent.
- Call the laboratory technician immediately in case of an accident/ incident.

Other essentials that individuals should know are where the safety devices in the lab are located, such as:

- The fire extinguishers and fire alarm call point.
- The fire escape route
- The type of fire alarm system in the building
- The emergency eyewash station and safety shower and know how to use them.

(3.4) Biological Safety

General Safety and Health procedures for dealing with biological agents. All persons working with biological agents must observe the following rules:

- Wear an approved lab coat. Labcoats are required for all experimental work.
- Keep the laboratory doors closed.
- Micro-organisms must be transported in leak-proof containers.
- Obtain permission before using the bio-safety cabinet.
- Hands should be washed regularly and always before leaving the laboratory.
- Report any spills to the lab technician (or his/her designate) so that they can be cleaned and disinfected.
- Place any non-sharp implements that you had used to handle biological agents into appropriate containers. Disposal of sharps should be in appropriate containers.
- Place all used microscope slides in disinfectant.
- Wastes materials are to be placed in specified containers and autoclaved before final disposal
- Never place cell culture vessels close to the edge of the lab bench and in areas where they could be knocked over.
- Never touch living biological agents with any part of your body. If you do come in contact with them wash the affected part thoroughly in soap and water.
- Never leave cultures open to the air: keep them covered at all times. Many biological agents can become airborne and inhaled.

(3.5) Mechanical safety

- Do not run any machine or piece of equipment until you understand its operation and have received appropriate authorization.
- Personal protective equipment must be worn to protect you from safety and health hazards.Do not wear gloves when operating powered or machine tools. They are easily caught in moving parts. Take them off before turning the machine on.
- When using compressed air, use only approved nozzles and never directs the air towards any person.
- Guards on machinery must be in place during operation.
- Exercise care when working with or near hydraulically – or pneumatically-driven equipment. Sudden or unexpected motion can inflict serious injury.
- Use the correct tool.
- Never look directly at a welding arc ray. Large amounts of ultraviolet light rays are produced and can cause eye pain and temporary blindness.
- Never use corridors as work areas.
- Avoid using extension cord whenever possible. If used, extension cords should not go under doors, across passageways or plugged into other extension cords.
- Be careful not to touch any hot surfaces as they might cause burn.
- Do not exceed wattage limits of devices when plugging them into electrical outlets.

(3.6) Lasers safety

- Never ever look into any laser beam, no matter how low power or "eye safe" you may think it is.
- Always wear safety goggles if instructed by your laboratory technician.
- The most common injury using lasers is an eye injury resulting from scattered laser light reflected off of mountings, sides of mirrors or from the "shiny" surface of an optical table. The best way to avoid these injuries is to always wear your goggles and never ever lower your head to the level of the laser beam. The laser beam should always be at or below chest level.
- Always use "beam stops" to intercept laser beams. Never allow them to propagate into the laboratory. Never walk through a laser beam.
- If you suspect that you have suffered an eye injury, notify your instructor or teaching assistant immediately.

(3.7) Electrical safety

- Be familiar with the electrical hazards associated with your lab.
- Obtain permission before operating any high voltage equipment.
- Maintain an unobstructed access to all electrical panels, where electrical hazard signs have been affixed.
- Avoid using extension cords whenever possible. If you must use one, contact your laboratory technician or Lecturer who will liaise with services section to obtain a heavy- duty one that is electrically grounded, with its own fuse, and install it safely. Extension cords should not go under doors, across aisles or plugged into other extension cords. Use extension cords only when necessary and only on a temporary basis. Do not use extension cords in place of permanent wiring. Request new outlets if your work requires equipment in an area without an outlet.
- Do not handle any equipment with wet hands.
- Only place three-prong plugs in three-prong outlets; do not alter them to fit a two-prong outlet.
- Never, ever modify, attach or otherwise change any high voltage equipment.
- Report any electrical defects to the laboratory technician, who will in turn report it to the services section for necessary action.

(3.8) Classroom safety

To ensure a safe and healthy environment, students should act responsibly in the classroom and on campus. This responsibility includes:

- Being familiar with UoM Health and Safety policies and procedures;
- Being familiar with University emergency procedures;
- Responding appropriately in the event of an emergency;
- Maintaining a safe classroom;
- Knowing the hazards of the materials and/or equipment being used;
- Following all safety procedures in the classroom and on campus;
- Reporting any unsafe conditions to your lecturer who will then report it to the services section.
- Participating in all safety awareness programme and emergency drill exercises organized by the UoM.

(3.9) Field Safety

When you are going for field studies:

- Dress appropriately for the weather and ground topography. Long sleeve pants and shoes with good anti-slip properties are standard. Sunglasses, gloves, raincoat, insect repellent, and other accessories may be necessary.
- Strictly follow instructions provided by staff.
- Stay with the group or a member of the staff. Do not be alone.
- Do not approach animals, dead or alive.
- Beware of poisonous plants. Do not touch. Do not pick flowers.
- Beware of negative impacts your presence may make on the habitats of other organisms.
- Stay on the path unless directed otherwise by your lecturer.
- Do not litter.
- Do not collect specimens of anything without direct permission from the lecturer.
- Report any accidents/injuries to the lecturer immediately.
- Remain on task on any trip. Know your purpose for being there and what needs to be accomplished.
- All known allergies or other physically limiting factors that may be challenged during a field trip are to be made known to your lecturer prior to the trip.

4. GLASSWARE AND SHARPS HANDLING

- Protect your hands when assembling glassware equipment.
- Place all sharps, glassware and contaminated items (glass pipettes, needles, etc.) into designated containers for disposal. Contaminated items need to be decontaminated before disposal.
- Clean all broken glassware promptly and dispose of properly into the proper container. Use a brush and not your bare hands.

5. SAFETY SIGNS AND NOTICES

Safety signs and notices are posted in prominent clearly visible positions in all UoM buildings. Safety signs are there for your safety and are produced in the following distinct categories namely:

- The “Prohibition” sign, red colour, tells you what you must not do (i.e. no admittance, no-smoking etc..). Red signs also indicates location of firefighting equipment (i.e. Fire extinguisher, fire alarm call point, hose reels etc
- The “Mandatory action” sign, blue colour, indicates people in that area must meet the requirements on the sign (i.e.. wear face mask, goggles, lab coat etc..).
- The “Warning” sign, yellow colour, warns of a risk of danger (i.e. flammable. Corrosive, toxic, explosive etc..)
- The “Safety information sign”, green colour, indicates the location of exits, assembly points, first aid boxes, eyewash station, safety showers and other safety related items.

6. GENERAL HOUSEKEEPIN

The best way to avoid accidents is to develop good housekeeping habits. Keep the laboratory clean and tidy. Clean up spills, broken equipment, floods and general clutter promptly. This especially applies to the area around any electrical equipment.

7. AUTOCLAVING FOR STERELIZATION

Individuals responsible for autoclaving glassware and other lab wares will be responsible for preparing the materials for sterilization if needs. When dealing with material for autoclaving, please keep the following in mind:

- Do not overfill the autoclave bag provided in the lab - leave enough room to close the bag in a safe manner.
- Do not seal the autoclave bag tightly - leave an opening to allow steam formed inside the bag to escape.

8. WASTE DISPOSAL

Government legislation requires that hazardous wastes be disposed of properly. Legislation aside, it is in your best interest to deal safely with waste.

- Dispose of waste solvents in waste bottles.
- Any biological wastes must be autoclaved to prevent contamination and deposited in an appropriate bio-hazard bin.

If there is a question with respect to proper disposal of chemical or biological wastes, ask your laboratory technician or your lecturer.

9. FIRE SAFETY AND EMERGENCY RESPONSE

When working in the laboratory,

- Read the chemical label and determine if a substance is dangerous (flammable, corrosive or toxic) before using it.
- If there is doubt about the potential hazards of a material, assume that the material is dangerous.
- Refer to Material Safety Data Sheets or Laboratory safety procedures for precautions to be taken with the chemical or biological agents used in the experiments.
- Keep all bottles of flammable, toxic, and corrosive chemicals closed and in the appropriate cabinet unless they are in use.
- Keep open vessels of solvent away from sources of heat or sparks.
- Never use open flames, unless authorized to do so by your laboratory technician.
- Know where the fire extinguishers are located.
- Know where the fire exits are.
- Know the location of fire alarm call points, which is clearly indicated by signs which read as follows “Fire alarm call point”
- Read carefully the ‘Fire Action’ signs posted in your respective building and take good note of the location of your fire assembly point.
- Know your building fire evacuation procedures.
- You should not prop or wedged open fire doors.
- If the fire alarm is activated, turn off all electrical and gas sources, and leave the building by the nearest fire exit route and proceed to your assembly point. The emergency escape signs posted throughout the building will guide you to the nearest exit route.
- Do not re-enter the building until the all clear has been given by the Chief Warden.
- Emergency drill exercise will be conducted at any time during the year. You must participate in the drill exercise and follow the instructions of your respective fire warden/s while evacuating the premises.

10. PROHIBITION OF SMOKING AND CONSUMING ALCOHOLIC DRINKS ON CAMPUS

Smoking tobacco products and consuming alcoholic drinks are strictly prohibited both inside and outside all buildings across the University campus.

All persons must abide by the No-Smoking and No-Alcohol policy.

11. FIRST AID FACILITIES ON CAMPUS

There are two first aid posts on campus to provide first aid facilities to staff and students of the University.

- **First Aid Post/ SSR Resource Centre/ Department of Medicine**

  Location: Ex-Student Common Room Building (Near Faculty of Agriculture)

  Telephone: 403 7699

  Opening Hours: MONDAY TO FRIDAY 09hr00 to 18hr00 (During Semester)

  MONDAY TO FRIDAY 09hr00 to 16hr00 (Off Semester)

  SATURDAY 08hr00 to 16hr00 (Throughout the year)

  Staffing: Two Qualified Full-Time Specialised Nursing Officer, attached to the Department of Medecine

- **First Aid Post/ Gymnasium**

  Location: Gymnasium

  Telephone: 471 0985

  Opening Hours: MONDAY TO FRIDAY 09hr00 to 16hr00 (During Semester)

  Staffing: Two Qualified Full-Time Specialised Nursing Officer, attached to the Department of Medecine

In the event of a medical emergency, students should take the following steps:

Minor Injury

In case of minor injury or illness, report immediately to the First Aid Post.

You may also seek assistance from the first aid posts on campus by calling on 4037699 or 4710985

Major Injury, Illness or loss of Consciousness.

In the event of Major injury, illness or loss of consciousness on campus, the following steps should be taken to initiate an effective response and/or course of action.

- The individual making the discovery of a person who is seriously injured, ill or has collapsed should immediately contact the University First Aid post on 403 7699 or 4710985
- After normal working hours, dial UoM Hotline on 403 7900.
- Keep the victim still and comfortable.
- Do not move the victim, unless exposed to life-threatening situations.
- Ask the victim, "Are you okay?" and "What is wrong?
- Continue to assist the victim until medical help arrives.
- If you are a qualified first-aider and you hold a valid first aid certificate, administer first aid as appropriate.
- When medical help arrives, give all information to the specialized nursing officer/s or any other medical response team.
- The specialized nursing officers will arrange (if required) for referral of the person to the nearest medical institution for advanced care.

NB - If there are any safety and health questions related to your lab, classroom or field trip which has not been covered in this document, you should seek advice from your laboratory technician, lecturer or program coordinator.

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