



# Faculty of Pharmacy

October University for Modern Sciences and Arts

(MSA)

## Bachelor of Pharmacy (PharmD) Lab Safety Manual



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## **Section 1: Introduction**

The purpose of the Laboratory Safety Manual is to provide users with information designed to ensure the health and safety of MSA staff and students in the laboratories. This manual also meets Occupational Safety and Health Administration (OSHA) requirements. The Laboratory Safety Manual is not intended to be all-inclusive, but serves instead to supplement more specific procedures developed for particular laboratory situations. All laboratory personnel must have access to this document as a basis for working safely at MSA University.

MSA University is committed to providing a safe laboratory environment for its faculty, staff, students and visitors. The goal of the University Laboratory Safety Program is to minimize the risk of injury or illness to all lab users by ensuring that they have the training, information, support and equipment needed to work safely in the laboratory.

### **A. Definition of Laboratory**

At MSA University, a laboratory is defined as, but is not limited to, any location where research or teaching is conducted using hazardous chemicals and biohazardous or biological materials.

### **B. Roles and Responsibilities**

*Departments* are responsible for adopting and implementing the policies within the Laboratory Safety Manual in the laboratories under their administrative control.

*Students* are expected to observe all applicable safety practices and procedures contained in this Laboratory Safety Manual, and report any unsafe or hazardous conditions to the lab supervisor.

*Visitors* are all persons entering a laboratory other than the laboratory staff, and enrolled students and authorized MSA University employees. Visitors to MSA University laboratories will be under the supervision of the host laboratory. The host is responsible for laboratory security during the visit, notification of potential hazards, oversight of visitor compliance with applicable safety practices and procedures contained in the Laboratory Safety Manual.

## **SECTION 2: Lab Safety Rules and Procedures**

MSA University is committed to providing a safe and healthy environment for its employees, students and visitors as well as managing the University in an environmentally sensitive and responsible manner. We further recognize an obligation to demonstrate safety and environmental leadership by maintaining the highest standards and serving as an example to our students as well as the community at large.

### **I- General Lab Safety Rules and Procedures**

1. Every individual that enters the laboratory has a duty of care to other users, and is expected to behave in a manner that does not compromise the safety of others.
2. Familiarize yourself with the location and operation of safety equipment (such as, but not limited to first aid kits and fire extinguishers) in the laboratory and emergency escape routes and exits
3. No food or drinks are permitted in the laboratory at any time.
4. Keep hands and other objects away from your face, nose, eyes, ears, and mouth. The application of cosmetics in the laboratory is prohibited.
5. Laboratory coats must be worn and buttoned while in the laboratory. Laboratory coats should not be worn outside the laboratory.
6. Long hair should be secured behind your head.
7. Hands must be washed before leaving the laboratory.
8. All unnecessary books, purses, briefcases, etc., must be kept off the counter tops.
9. Never pipette anything by mouth (including water). Always use pipetting devices.
10. Report any broken equipment.
11. Immediately, report any broken glass, especially those containing infectious materials.
12. If you are injured in the laboratory, immediately contact your course instructor or TA.
13. Follow all instructions given by your course instructor or TA for cleaning up any spills or broken glass.

## II- Special lab safety precautions

### a) Chemical hazards.

- 1- Every individual who handles chemicals in the laboratory must have proper knowledge of the toxic effects of these chemicals, routes of exposure and their hazards
- 2- Material safety data sheets or other chemical hazard information are available from chemical manufacturers and/or suppliers. They should be read well before dealing with any chemicals.
- 3- Chemicals should be stored and handled according to the instructions specified by the supplier to minimize any hazards.
- 4- Disposal of chemicals should be in the proper containers provided and segregated according to instructions.
- 5- When handling chemicals note the hazard code on the bottle and take the appropriate precautions indicated in MSDS (Materials safety data sheet).
- 6- Return all chemicals, reagents, cultures, and glassware to their appropriate places.
- 7- Do not pour chemicals down the sink.
- 8- Any chemical spills must be immediately reported to your course instructor or TA and should be handled as indicated in MSDS.

### b) Biological hazards

1. Observe aseptic technique at all times when dealing with microbial cultures. Students are NOT permitted to work in the laboratory unless a lab instructor is present.
2. Regard all organisms and biological materials used in this laboratory as potentially infectious and pathogenic to humans.
3. Work areas/surfaces must be disinfected before *and* after use.
4. Label all materials with your name, date, and any other applicable information (e.g., media, organism, etc.).
5. Disposal of wastes should be in the proper containers (see Biohazard Waste Disposal below).
6. Do not pour biohazardous fluids down the sink.

7. Flame transfer loops, wires, or needles should be disinfected before and immediately after use to transfer biological material.
8. Do not walk around in the laboratory with transfer loops, wires, needles, or pipettes containing infectious material.
9. Be careful while using Bunsen burners. Flames cannot always be seen.
10. Turn off Bunsen burners before leaving the laboratory.
11. Immediately, report any broken glass, especially those containing infectious materials.
12. If you are injured in the laboratory, immediately contact your course instructor or TA.
13. Use appropriate universal precautions with all biological fluids.

**c) Lab animals**

1. Be cautious when handling animals. Do not treat animals as pets, and any animal bite must be carefully monitored with appropriate first aid procedures.
2. Wash hands before and after handling the animals.
3. Respect the animals. Ensure that they are fully anesthetized or dead before carrying dissection.
4. It is recommended to disinfect the animal with 70 % ethanol before dissection. All dissection tools should be disinfected in 70 % ethanol before and after use.
5. All waste related to animal work are biohazardous waste and waste disposal procedure for such category should be strictly followed.
6. All animals are not allowed to be left outside the cage. Any escape or lose of animals should be reported to the lab instructor.
7. Work areas/surfaces must be disinfected before *and* after use.
8. Disposal of wastes should be in the proper containers. (see Biohazard Waste Disposal below).

## SECTION 3: Disposal of chemical and biohazardous wastes.

### General rules for wastes disposal

Material	Method of disposal
Biological liquids (not in test tubes)	Leave in container with closed cap and leave in the area designated for materials that are to be decontaminated by autoclaving.
Biological liquids in test tubes	Place tube upright in indicated test tube rack with caps left on the tube
Broken glass	Disposed in hazardous Sharps container
Needles, syringes, other types of sharps	Disposed in hazardous Sharps container
Noncontaminated paper	Regular trash
Contaminated solids (other than swabs)	Biohazard "orange/red bag" container
Cotton Swabs (contaminated)	Discarded in bench top discard can containing disinfectant
Agar slants with biological material	Place tube upright in indicated test tube rack
Petri dishes and contaminated solids (other than pipettes or swabs)	Biohazard "orange/red bag" container
Transfer pipettes (contaminated)	Discarded in bench top discard can containing disinfectant, Pipettes are disposed of tip side down.
Chemicals solutions and powders	Chemicals wastes should be discarded in their specified containers which will prevent their interaction and possible explosion (per chemical waste disposal instructions in each lab)

In general, non-contaminated items that pose no threat as a sharp object capable of causing injury can be disposed by placing them in the regular trash. All sharps, contaminated or not, should be

discarded into the sharps container. All other contaminated materials have specific locations in which they are discarded.

## SECTION 4: Emergency Procedures

For any emergency, including fires, chemical spills, injuries, accidents, explosions, and medical emergencies, dial MSA security and University physician from any University phone, located in throughout campus.

Accident	Emergency procedures
Puncture wounds, cuts and abrasions	The affected individual should remove protective clothing, wash the hands and any affected area(s), apply an appropriate skin disinfectant, and seek medical attention as necessary.
Ingestion of potentially infectious material	Protective clothing should be removed and medical attention sought.
Broken containers and spilled infectious substances	Broken containers contaminated with infectious substances and spilled infectious substances should be covered with a cloth or paper towels. Disinfectant should then be poured over these and left for the appropriate amount of time. The cloth or paper towels and the broken material can then be cleared away; glass fragments should be handled with forceps. The contaminated area should then be swabbed with disinfectant.  If dust pans are used to clear away the broken material, they should be placed in an effective disinfectant. Cloths, paper towels and swabs used for cleaning up should be placed in a contaminated-waste container. Gloves should be worn for all these procedures.  If laboratory forms or other printed or written matter are contaminated, the information should be copied onto another form and the original discarded into the contaminated-waste container.
Fire and natural disasters	Call the fire service, and follow the guidelines for fire emergency found in each lab showing the safety stairs and exits in case of fire.

Emergency services: whom to contact

*The telephone numbers and addresses of the following are prominently displayed in the facility:*

1. Laboratory supervisor
2. Fire services
3. Medical clinic
4. Responsible technician



Emergency equipment

*The following emergency equipment must be available:*

1. First-aid kit, including universal and special antidotes
2. Appropriate fire extinguishers.

## **REFERNCES**

Armour, Margaret-Ann, *Hazardous Laboratory Chemical Disposal Guide*, Lewis Publishers, NY, 1996

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Furr, A. Keith, *Handbook of Laboratory Safety*, 5th ed., The Chemical Rubber Company, 2000.

\*Gosselin, et al, *Clinical Toxicology of Commercial Products*, 5th ed., Williams & Wilkins, 1984.