Introduction:

During student's undergraduate study, laboratory sessions are part of PharmD program, where students have the opportunity to conduct experiments and prepare formulations. Therefore, students must be aware of general and specific lab safety rules and regulations to avoid accidents that may cause very serious harm to students themselves or others working with them. The purpose of this form is to ensure that each student have read, understand and follow the lab safety rules by signing at the end.

❖ **General lab safety:**

There are general safety rules that students have to follow in any lab. They are:

"Your personal laboratory safety depends mostly on YOU"

- In your first lab session of each discipline, read the safety and instruction poster and familiarize yourself with entering door, emergency exit, working and banned areas.
- Listen carefully to the instructions before attempting to do anything and perform only those experiments authorized by your teacher.
- Working in the laboratory without supervision is not allowed.
- A lab coat, safety glasses and gloves should be worn during laboratory experiments.
- Shoes must completely cover the feet "No sandals or shorts allowed".
- Always work in a well ventilated area.
- Wear mask when it is necessary.
- Keep the work area clear of all materials except those needed for your work "Take to the lab only what is necessary".
- No eating, drinking or chewing gum are allowed in the lab.
- If you have long hair, make sure it is tied back or confined.
- Do not wear loose clothes or dangling jewelry on lab days.
- If you have a wound or minor cut, it should be covered during the session.
- Labels on the containers must be read carefully before use.
- Do not use any equipment unless you are trained and approved as a user by your supervisor.
- Learn and avoid the hazards associated with the equipment you will use in your experiments.
- You are responsible to dispose any used material properly in appropriate containers.
- Do not carry reagent bottles to your desk.
- Never return excess materials to reagent bottles.
- Keep hands away from face, eyes, mouth and body while using chemicals or lab equipments.
- Examine glassware before each use. Never use chipped, cracked, or dirty glassware.
- Be alert and proceed with caution at all times in the lab.
- Do not put yourself or others in danger.
- Do not wear contact lenses.
- Never pipette anything by mouth.
- Clean up your work area and glassware that you used before leaving the lab.
- Wash hands before leaving the lab and before eating.

❖ **Biosafety:**

Students may deal with biological materials that contain genetic information and capable of reproducing itself or being reproduced in a biological system. These materials include: microorganisms, animals (live tissues and biological fluids), plants, human tissues or biological fluids and microbial toxins. These materials can be considered as biohazards that present a risk or potential risk either directly through infection to the human and animal or indirect through damage to the environment.

To avoid any type of contamination in lab session where biohazardous materials are being handle, several points should be considered:

- Washing hands before and after - with anti-bacterial soap - the lab session.
- Wearing protective equipments, such as: lab coat, gloves and safety goggles, to minimize exposure to biohazards.
- Immediate cleaning for any biological spills.
- The work counter and equipment used should be cleaned after each session with bleach.
- Contamination equipment must be dispose in a separate container "biohazardous waste can".

❖ **Handling chemicals:**

Chemicals that you will use in the lab can exist in many forms: Dust, fumes, fibers, powders, liquids, gases, vapors. Any chemical that has a potential to cause harmful effects is referred to a hazardous or dangerous chemical. These chemicals include any chemicals:

- Brought directly to be used in experiments such as solvents, or cleaning agents.
- Generated by a process or work activity.
- Generated as a waste or residue.

The hazardous effect that the chemicals can cause may appear directly after the contact, such as: chemical burns, or after many years of exposure. In both cases, protection is needed. In addition to that, chemicals do not all have the same hazardous effects which they can be identified through their labels. Table 1 (Appendix I) shows the most famous symbols of hazardous materials. Therefore, several steps must be emphasized to avoid any accidents:

- Protection is always needed.
- Never use chemical for anything other than the authorized purpose. For example: use of gasoline to wipe equipment.
- Always check with the teacher on the type of chemicals involved in your work, uses and their harmful effects.
- Never mix chemicals that are not listed in your experiment.
- Always check the labels of materials before using them.

❖ **Waste management:**

You will work with different materials and at the end of your work you need to properly dispose them in a suitable container and can. The following are the most important notes on waste disposal:

- Listen carefully to the instruction on how to dispose a specific material that you will use in the lab.
- Familiarize yourself with the waste container location.
- You need to know the label of waste container to be able to dispose the materials in the right way. See Table 2 (Appendix II) where hazards materials are illustrated with their specific waste containers.
- Only pure water can go down the sink.
- Never mix wastes as may result in serious harm.
- If you found the waste container overfull, ask the instructor to provide a new one.
- Before glassware disposal in waste container, rinse them with water.
- If you are not sure on how to dispose something, ask your supervisor.

❖ **Simulation Lab:**

Although there will be no experiment or laboratory work performed in this lab, specific rules and regulations are applied to organize the work inside this lab. These regulations include:

- All users of the lab space must act in a manner that does not disturb the academic activities occurring in the lab.
- No lab user shall infringe upon the privacy, rights, privileges, health, or safety of other lab users.
- All faculty, staff and students must complete the orientation prior to using the equipment.
- No eating or drinking is allowed in the Simulation lab.
- Use of the computers is restricted to assigned work and not for personal use.
- Do not use the equipment for any purpose other than specified; anyone who fails to comply with this request will be asked to leave the lab.
- Any equipment malfunction or abuse must be reported to the lab coordinator immediately.
- The doors of the lab will be locked at all times.
- Smoking is prohibited in the Simulation lab.
- All electronics including cell phones, cameras, camera phones, and video recorders are prohibited during simulations.
- Any student wishing to use the lab must notify the Simulation Coordinator and sign in on the attendance book.

Laboratory safety agreement

I have read the safety guide and familiarized myself with the laboratory, equipment and chemical safety issues and have acquired all the know-how and the necessary training for safe working in the laboratory. By signing this form, I agree that the safety rules and regulations are developed to help prevent accidents and to ensure my own safety as well as my colleagues. I understand that I may ask my instructor at any time about the rules and regulations if they are not clear to me. Finally, my failure to follow these instructions may result in disciplinary action.
Please check first aid & emergency procedures (Appendix III).

Name _____ Signature _____ Date _____

Appendix I

Table 1: Lab symbols of hazards materials

Symbol	Description	Symbol	Description
	Explosion hazard		Flammability hazard
	Chemical is stored as a gas under pressure		Dangerously active material
	Oxidizing hazard		Environmental hazard
	Corrosion hazard		Biohazadous
	Health hazards such as skin and eye irritation, and skin sensitization.(general hazard)		Hot surface Hazard
	Acute toxicity hazard		Radioactive
	Electrical hazard		Carcinogen hazard

Appendix II

Table 2: types of waste in lab with their suitable waste containers.

Waste type	Waste container	Photo
Chemical solvents and liquids	5L HDPE residue container (approved)	
Contaminated Material which has hazardous material adhered	Laboratory Contaminated Material bin	
Filter paper Gloves Tissues Glass	Waste Contractor Contaminated Waste bin	
Sample vials containing less than 2g hazardous material	Hazardous sample vial waste container	
Old or unlabelled chemicals in supplier bottles	These bottles can be taken directly to waste pick up, ensuring that a waste tracking log is completed. Special collections of high risk or unlabelled material can be arranged.	
Broken Glass (chemically clean, including domestic glass)	Half-size yellow or grey SULO bins Small bin with lid, temporary storage	
Contaminated Sharps Sharps	In a sharps container and bagged according to the type of contamination (biohazardous, radioactive, cytotoxic) Yellow sharps containers	
Biohazardous	In Yellow bags or containers labeled with black biohazard symbol	

Appendix III

❖ First Aid & Emergency Procedures:

In case of accidents and emergency situation, it is important not to panic and report it immediately to you supervisor. In addition to that:

- You need to learn where and how to use safety devices, including: Eye Wash Station -Breathing Apparatus - Spill Cleanup Materials - First Aid Kit - Fire Alarm - Fire Extinguisher.
- You need to know all the special label that describe the hazard effect of materials, such as flammable, corrosive or explosive.
- Always maintain a clear path to all safety equipment at all times.

A. In case of wounds:

1. Never touch an open wound without wearing gloves.
2. Clean the wound with water as appropriate.
3. In case of small cut, place a sterile pad over wound and apply gentle pressure evenly with the opposite hand.
4. Rise the area injured above the level of the heart if the bleeding did not stop.
5. Take the patient to hospital or ask for help from medical team in the university.

B. In case of Burns:

Thermal burns

1. First degree burns: redness or discoloration of the skin, mild swelling and pain are the characters of first degree burns. Immersing or raining with water for 10 minutes can be enough. Creams can be applied.
2. When the burn result in red or scared skin with blisters (second degree), or, white or charred skin (third degree), immediate cleaning of the area is necessary when possible and transfer to hospital.

Chemical Burns

1. If chemicals come in contact with skin, remove the chemical right away and rinse the affected area with large quantities of water for at least 15 minutes.

2. In case of eyes contamination, rinse them with running water for at least 15 minutes at the eye wash station.

3. In either situation, medical advised should be asked immediately.

C. In case of ingestion of a toxin:

1. Poisoning caused by swallowing chemicals, can be overcome by diluting the stomach contents with large quantities of water.
2. Try to know what was the material ingested.
3. Immediate Medical treatment.

D. In case of inhalation of chemical fumes:

1. Take the individual to fresh air.
2. Provide an artificial respiration if needed.
3. Immediate medical treatment.

E. Fire:

If clothing is on fire, help the individual to the floor and roll him/her around to smother the flames, or if a safety shower is immediately available, douse the person with water. Seek medical attention.