

## Student Handbook – Lab Safety Policies

### Biology Lab Safety Policies

#### Introduction:

Cabrini University is dedicated to the safety of our students as they learn. Indeed, an important part of a student's scientific education is learning how to safely operate in the lab. Our safety policy contains general safety practices for biology labs, but cannot cover all circumstances. Students must comply with faculty and staff instructions and use practical judgement at all times.

Students are required to familiarize themselves with these standard lab safety practices and complete a lab safety training in each lab course at the University. Failure to comply with safety practices and policies may potentially result in dismissal from a class session and a reduction in course grade. Egregious and/or repetitive infractions may also result in failure of or dismissal from a course or even the department and major, without a probationary period.

## General Instructions for All Laboratory Sessions:

During the first month of each lab course, students must receive a safety orientation. Training includes demonstration of the location and use of emergency response equipment in the lab, as well as hazardous & non-hazardous waste disposal. Students are also informed how to respond to and report an emergency.

Personal items brought into the lab increase the risk of accidents, therefore a limited amount of storage space, mostly in the form of small drawers, is available for student use in the laboratories. These drawers should be kept neat and emptied at the end of the semester. Students should leave their book bags, backpacks, and all other personal items not needed for the laboratory exercise in the areas provided near the entrance to the laboratory. Personal belongings left in departmental facilities may be discarded.

Experimental procedures for lab activities will be made available to students in advance of scheduled lab periods noting all relevant safety considerations and disposal practices for chemicals and/or biologicals.

SDS sheets for all chemicals used in a given experimental procedure are available to students and faculty on file in the center for IAD, Room 212. Each chemical container must be labeled with the complete name of the chemical, date, hazards (if any) and instructor's initials.

Student help may be utilized to set out such items as special glassware, electrical equipment, additional balances, etc.

General or special glassware will be returned by the student to the main washing area, and washed, heat dried, and replaced in storeroom.

Instructor will check laboratory for hazardous conditions before and after each lab, including all gas jets, water sources, heat, air and electrical items.

When Bunsen burners are used, students will be instructed on their dangers and will only leave the flame on when actively in use.

After hot plates are used, students will remain at the tables until they cool off and can be returned to storage by the instructor.

Students must report spills or accidents to the instructor and/or Chemical Hygiene Officer, who will take responsibility for cleaning up the spill/accident. The student may be enlisted to assist in cleanup, if it is safe to do so.

### Dress Code and PPE Policy:

1. Minimum PPE requirements for all biology labs are a lab coat and safety glasses. This applies when the lab is actively being used as a laboratory, therefore, is not applicable if a lecture is being taught.
2. Lab coats must be worn and kept buttoned in the laboratory, and removed when moving outside of the laboratory.
3. Safety glasses are provided for student use. Students may purchase their own for use in the lab, but must have them approved by the instructor first. Students who refuse to wear their eye protection will be asked to leave the lab for that laboratory exercise, and will receive a zero (0) for that assignment. Refusal to wear the required eye protection on any subsequent occasion is grounds for failure in the course.
4. Contact lenses MUST NOT be worn in the laboratory at any time. Safety goggles that can be worn over eyeglasses are available. Contact lens wearers put themselves at extra risk when working with chemicals, including preservatives associated with dissection material, therefore they are not allowed.
5. Nitrile gloves are worn when hands may contact potentially infectious materials, contaminated surfaces or equipment. Wearing two pairs of gloves may be appropriate. Gloves are disposed of when overtly contaminated, and removed when work with infectious materials is completed or when the integrity of the glove is compromised. Disposable gloves are not washed, reused, or used for touching "clean" surfaces (keyboards, telephones, etc.), and they should not be worn outside the lab. Hands are washed following removal of gloves.
6. Nitrile single-use, disposable gloves should be replaced as soon as possible if contaminated, torn, punctured or damaged in any way. Never wash disposal gloves or decontaminate for reuse. Also do not touch door or equipment handles with contaminated gloves, keep one hand free for such activities or change your gloves prior to touching doors and devices.
7. All labs require clothing that covers a substantial portion of the skin. For example, bare midriff clothing, shorts, gym trunks, "ripped" jeans, and skirts are prohibited. This is for the students' safety, and will be enforced.
8. Long hair must be tied back, and large or dangling jewelry must be removed before entering the laboratory. Long hair is a serious fire hazard.
9. Shoes that cover and protect the feet must be worn in the laboratory. Open-toe shoes, high heels, and sandals are strictly forbidden in the laboratory. Any student so dressed will not be permitted to complete the laboratory exercise.

## Safe Behavior Policy:

### General Lab Behaviors:

1. Instructors provide specific instructions for each lab exercise. Observe these carefully, as they include safety precautions. If you have any doubt about what to do in any set of circumstances, consult your instructor.
2. Unauthorized experiments and unauthorized modifications of experiments are strictly prohibited.
3. No eating, drinking, chewing gum or smoking is permitted in the labs. These activities are strictly prohibited for the safety of the students.
4. Cosmetics must not be applied in the labs.
5. The department provides pumps and bulbs for pipetting. No pipetting by mouth will be permitted.
6. Food and drink are not permitted in the labs. Storage is available outside each lab.
7. Drawers & cabinets must be closed at all times, except when actively inserting or removing an item. Open doors and drawers obstruct the aisle, and may cause accidents.
8. Assemble a laboratory apparatus away from the edge of the laboratory bench.
9. Report broken equipment to your instructor immediately.
10. Always be alert to the possibility of an accident by your neighbors, as their actions could affect you. Always advise them of any unsafe practices you observe. If necessary, inform your instructor immediately.
11. Hands should be washed immediately after completion of any procedure in which potentially infectious material is used, even though gloves are worn. Be especially careful not to inadvertently touch the face or eyes with unwashed hands. Proper hygiene includes frequent hand washing, especially prior to leaving the laboratory.
12. Use cleaning tissue rather than cloth/cloth handkerchiefs when handling infectious materials.
13. Procedures or activities likely to produce aerosols of infectious material must be conducted in a biological safety cabinet (BSC.) Instructor will ensure proper experimental set up in the biosafety cabinet and proper use of the cabinet by students.
14. Exercise caution when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles. Do not recap used needles by hand. Do not remove used needles from disposable syringes by hand. Do not bend, break, or otherwise manipulate used needles by hand. Place used disposable syringes and needles, scalpel blades, and other sharp items in puncture resistant containers for disposal. Dispose of contaminated pipettes or broken glass in appropriate biohazard containers.
15. All specimens of potentially infectious material should be put in a well-constructed container with a secure lid to prevent leaking during transport. Care should be taken when collecting each specimen to avoid contaminating the outside of the container and

the laboratory from the specimen. All persons processing blood and body fluids should wear gloves. Masks and protective eyewear should be worn if mucous-membrane contact with blood or body fluid is possible. Gloves should be changed and hands washed after completion of specimen processing.

16. Laboratory work surfaces should be decontaminated with an effective chemical germicide after a spill of potentially infectious material and when work activities are completed for the day. A routine daily decontamination at the end of the workday is a standard minimum decontamination schedule when work is ongoing, regardless of work activities.

#### Handling Chemicals Safely:

1. Consider all chemicals to be dangerous (hazardous) unless you are specifically instructed otherwise. Read labels carefully.
2. Laboratory hoods must be used when working with chemicals that are highly reactive, toxic, corrosive, irritating, or flammable. Keep the sash down to a level that will protect you should any splashes or boil over occur.
3. Never point a test tube or any other reaction vessel toward yourself or anyone else. Chemicals undergoing heating or a reaction may spatter over a large area.
4. Never smell (inhale) gases or vapors directly. When you are INSTRUCTED TO REPORT THE ODOR OF A CHEMICAL, gently waft the vapors toward your nose and SMELL CAUTIOUSLY as described by instructor.
5. Never taste chemicals, put them in your mouth, eyes, nose, or on your skin. If chemicals come in contact with your eyes or skin, wash immediately with large amounts of water. CALL FOR HELP WHILE YOU ARE WASHING. Contaminated clothing should be removed.
6. Never rub your eyes in lab. Wash your hands with soap and water often, especially after you complete the laboratory experiment.
7. Glassware must be inspected before use, and glassware with obvious flaws, chips, or breaks must be discarded.
8. Most organic liquids are flammable, as are some gases such as hydrogen. Never use flammable chemicals near a flame or a hot plate.
9. Always pour CONCENTRATED acids in water, never water into acid. (Remember the AAA phrase, "Always Add Acid.") Sulfuric acid, for example, releases enough heat to cause spattering. Hot concentrated acids are very corrosive.
10. Never return unused chemicals to their original container, as this may contaminate it.
11. Chemicals are NEVER to be taken from the laboratory.
12. Dispose of chemical waste appropriately. Hazardous waste containers will be placed in the Satellite Accumulation Area (SAA) of the laboratory according to hazard (flammable, corrosive, toxic, etc.) Each container must be labeled by the instructor before using.

### Handling Potentially Infectious Materials Safely:

1. The Center for Disease Control (CDC) and the Occupational Safety and Health Association (OSHA) recommend implementing the principle of "universal precautions."
  - a. Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B virus and other blood-borne pathogens.
2. Despite precautions, accidental spills can occur in the laboratory. When potentially infectious materials are involved, it is important that the area be immediately isolated to prevent spread of the spill. All spills shall be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially infectious materials.
3. Contaminated sharps must be segregated from other wastes and disposed of in leak-proof, rigid, puncture resistant, shatterproof containers. These containers are supplied in each lab and labeled as a Biohazard Waste.
4. Place all other biohazardous waste into designated biohazardous waste bags inside labeled biohazardous waste boxes. All cultures, stocks, and other regulated wastes are decontaminated before disposal by an approved decontamination method known as autoclaving.
5. Sharps containers will be disposed as needed when boxes are full. Please alert your instructor if full. DO NOT dispose of physically hazardous waste in the regular trash.
6. All procedures involving potentially infectious materials are performed carefully to minimize the creation of splashes, droplets, or aerosols. This may include centrifuging, grinding, blending, vigorous shaking or mixing, sonic disruption, opening containers of infectious materials whose internal pressures may be different from ambient pressures. If this cannot be prevented, work should be performed in a Biological Safety Cabinet (BSC.)
7. Laboratory equipment and work surfaces should be decontaminated with an effective disinfectant on a routine basis, after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination by infectious materials.
8. Spills and accidents that result in overt exposures to infectious materials are immediately reported to the Lab Manager. Medical evaluation, surveillance, and treatment are provided as appropriate and written records are maintained by Public Safety.
9. A biohazard sign will be posted at the entrance to the laboratory whenever infectious agents are present. The sign will include the name of the agent(s) in use and the name and phone number of the Chemical Hygiene Officer/Emergency Contact.

### Housekeeping Policy:

1. Always maintain an orderly, businesslike attitude and a clean, orderly working space. Horseplay can be dangerous and may get you expelled from the lab.
2. Broken glass and sharp objects must be disposed of in appropriately marked containers.
3. Lab benches must be cleaned regularly. In the event of spills or contamination, cleanup is to be done immediately.

4. Put paper waste and glass waste in waste containers.
5. Chemical and biological waste is to be disposed of properly. If hazardous, a prepared waste container will be available. Instructors will advise when/if a liquid is safe to be disposed of down the sink – never pour chemicals down the sink unless specifically instructed to do so. Always check that material waste is approved for the trash can.

#### Security Policy:

1. Students are NEVER to work alone in the laboratory. The instructor must always be present.
2. Any student who is not a registered member of the class is not permitted to be present in the laboratory at any time. Any student who has withdrawn from the class is no longer permitted to attend any laboratory exercise, or be present at any time in any laboratory.
3. Animals are not permitted in the laboratories.

#### Emergency Response Preparedness:

##### Emergency Equipment Awareness:

1. Locate all the nearest safety equipment:
  - a. fire extinguisher;
  - b. emergency shower;
  - c. eye wash fountain;
  - d. first aid kit;
  - e. spill kits
2. Phones are provided in all laboratory rooms throughout the hallways of each floor of the building. Under no circumstances will students make any personal calls on these telephones; the telephones are strictly for emergency reporting.

##### Chemical Spill Response:

1. If any hazardous chemicals are spilled, immediately notify the instructor and/or the Chemical Hygiene Officer, who will take responsibility in cleanup. The Chemical Hygiene officer may be reached by dialing 8507 on the lab's phone. Spill kits are available to assist in cleanup.
2. If chemicals have come in contact with your clothes, skin or any body part, rinse the affected area with water immediately. If a large area is covered, remove contaminated clothes and use the safety shower to rinse off.

##### Potentially Infectious Material Spill Response:

1. A spill or accident that results in an exposure incident shall be immediately reported to the laboratory director or other responsible person. All major spills involving infectious materials must be reported to the Department Chair, Lab Manager and Public Safety.

#### Medical Emergency Response:

1. In a medical emergency, it is always appropriate to dial 911 from a cell phone. Landline phones are available in each lab and throughout the building to reach Cabrini University's Public Safety department. In any emergency, even if a cell phone was used to call for assistance, dial 8111 on a landline to reach Public Safety. They are close by and may be needed to assist emergency personnel. Always inform your instructor of any emergency.

#### Fire Alarm Response:

1. Always know the location of the nearest emergency exit you would use in case of a fire.
2. Respond to every fire alarm as you would in an emergency. Calmly leave all belongings behind and immediately head to the nearest emergency exit. Your instructor will give instructions on how to proceed from that point.

#### Additional Health Concerns:

If a student is breastfeeding, pregnant, or may become pregnant, Cabrini wants to care for your particular health needs. Special precautions must be taken to avoid contact with certain harmful chemicals and materials. Faculty, the Chemical Hygiene Officer, and SDS logs are available resources to assist with this.

If a student has any allergies or chemical sensitivities, Cabrini wants to protect your health. Please have a conversation with your supervisor and consult the Chemical Hygiene Officer and SDS logs to help reduce your health risk.

No student or faculty member will be permitted to work in any research laboratory of the Science Department without having been properly trained in all lab safety procedures.