In CBS, WHMIS, Biosafety and Laboratory Safety training is mandatory for anyone involved in laboratory and/or other research. WHMIS training is required for any additional personnel whose work may involve handling hazardous materials.

Additional courses may be mandatory due to the nature of the research being performed. All personnel working with radioactive materials or devices are required to complete the training program delivered by the Radiation Safety Officer. Anyone conducting animal experiments is required to complete the training modules set out by the Animal Care Committee.

5. **Standard Operating Procedures**

CBS has developed a catalogue of Standard Operating Procedures (SOPs). These are documents that lay out specific directions on what to do in certain emergency situations, or instruction on the use of common lab equipment.

Standard Operating Procedures for the College of Biological Science are available on the CBS Health & Safety Website, under ‘CBS Safety Handbook, Procedures & Forms’ ([www.uoguelph.ca/cbs/safety](http://www.uoguelph.ca/cbs/safety)).

Also be aware of departmental procedures that apply to your work; for example the code of conduct requirements applicable to the human anatomy laboratories.

6. **Emergency Procedures**

Knowing what to do in an emergency could save your life.

6.1. **Evacuation**

When you hear the evacuation alarm, **immediately:**

- Extinguish any open flames and close any open gas valves.
- Close the sash on fume hoods and biosafety cabinets (BSCs).
- Exit the lab, and close the door behind you.
- Move quickly and calmly to the nearest safe exit or stairwell. Do not attempt to use the elevator.
- **Once outside, move well away from the building.**
- Pass any relevant information on to fire wardens.
- Reentry to the building may proceed once the alarm bells have stopped ringing unless instructed otherwise by emergency response personnel.

Anyone requiring assisted evacuation must be moved to the landing of the nearest safe stairwell. Ensure a fire warden or colleague notifies the emergency authorities of the person’s location.
6.2. Fire
In the event of a fire, getting out safely is the top priority.

- Assess the fire – if it is small and controllable, you may use a portable extinguisher to put out the fire using the method described below. For fires that are not controllable, evacuate right away.
- Notify others in the lab and move quickly to the nearest safe exit.
- Activate the alarm pull station on your way out.
- If you are last to leave an area, close doors behind you.
- **Once outside, move well away from the building.**
- Pass any relevant information on to fire wardens and be available if the emergency authorities need to speak with you.
- Reentry to the building may proceed once the alarm bells have stopped ringing unless instructed otherwise by emergency response personnel.

If you need assistance to evacuate, move to the nearest safe stairwell and have a colleague or fire warden notify the emergency authorities of your location.

To operate an extinguisher, remember **P-A-S-S**:

P - Pull the pin.

A - Aim the nozzle at the base of the fire.

S - Squeeze the trigger.

S - Sweep side to side.

The Fire Prevention Office has created a video to demonstrate proper use of a fire extinguisher – it is available at this URL: [http://www.fire.uoguelph.ca/fire_extinguisher.html](http://www.fire.uoguelph.ca/fire_extinguisher.html).

In all CBS buildings, we have people who voluntarily serve as Fire Wardens; please follow their instructions and be respectful. Evacuation is mandatory and the Fire Prevention Officer may take disciplinary action against anyone refusing to leave.

6.3. Chemical Spill
The critical factor in chemical spill emergencies is knowing when you need to evacuate and get help. If you are ever in doubt of your ability to handle and clean a chemical spill, evacuate the lab and dial 2000 for assistance.

Refer to the CBS SOP at: [http://www.uoguelph.ca/cbs/safety/cbs_ews_procedures.html](http://www.uoguelph.ca/cbs/safety/cbs_ews_procedures.html) for detailed instructions on how to manage a chemical spill.

Spills can be classed as major (i.e. you need help) or minor (i.e. you can handle it yourself).

Evacuate the lab and get help if you have a spill that:
- You are not comfortable cleaning yourself.
- Is greater than 4L and is a flammable, combustible or other organic liquid.
- Poses a risk of fire or explosion.
- Creates a respiratory hazard (e.g., corrosive vapours, highly toxic chemicals).
- Involves unknown chemicals.
- Involves >1L of a concentrated strongly oxidizing acid (e.g., nitric, perchloric or chromic acid).

Following a spill, do a ‘self-check’. If you have been splashed with a hazardous chemical, flush the area immediately. Remove all contaminated clothing and continue to flush the area; caustic or corrosive chemicals trapped against your skin can cause severe burns.

There are certain chemicals (e.g., hydrofluoric acid, mercury, and formaldehyde) that require specific neutralizers or absorbents not commonly found in lab spill kits. If these materials are used in your lab, make sure the spill kit has the supplemental items recommended in the SOP.

6.4. Biohazard Spill

Review the CBS SOP at: http://www.uoguelph.ca/cbs/safety/cbs_ehs_procedures.html for further details.

The important principles when managing a biohazard spill are to know the hazards of what you are working with, to avoid aerosol exposure or contact with contaminants, and to use the right disinfectant in the right way.

The first consideration is your safety. If biohazardous material has spilled on you, remove contaminated clothing and thoroughly wash the affected areas. If material gets in your eye, flush at the eyewash for 15 minutes. If it is a spill that creates a hazard for others in the area (e.g. aerosolized pathogen), notify everyone in the lab and have them evacuate.

You want to avoid inhalation of pathogens. If the spill is in the lab and there is concern of airborne exposure, evacuate the room and allow 30 minutes for aerosols to settle. If the spill occurs in a biosafety cabinet, lower the sash and ensure the fan is running for at least 10 minutes. If a tube of pathogenic material breaks in a centrifuge, put a sign on the equipment and leave the centrifuge closed for 30 minutes for droplets to settle before you attempt to clean the spill.

Specific directions are provided in the SOP. The basic technique is to cover the spill with absorbent material, soak with a suitable chemical disinfectant, allow enough contact time for the disinfectant to work, then bag all waste and send for autoclaving. It is also important to notify your supervisor of the spill and complete an Incident Report.
6.5. Medical Emergency

- Obtain first aid assistance. The names and contact numbers of departmental first aiders are posted in every lab. In addition the University’s first aid stations are:
  - Student Health Services, JT Powell Building
  - Occupational Health and Wellness (OHW), Alexander Hall
  - Campus Police/Fire Prevention, mobile service
- Students may obtain further medical treatment from Student Health Services. Employees can seek medical treatment or advice through Occupational Health and Wellness.
- **For emergencies, dial 2000 and request emergency assistance.**
- In an emergency, do not attempt to transport the casualty to the hospital yourself. Dial 2000 and request an ambulance.
- Severe injuries require **immediate** notification of EHS. If an injury meets the regulated definition of ‘critical’, the Ministry of Labour must be notified and the scene preserved.
  - A critical injury is one that:
    - Is potentially life threatening.
    - Causes loss of sight in an eye.
    - A burn to major portions of the body.
    - Produces unconsciousness.
    - Causes substantial loss of blood.
    - Causes fracture of arm or leg, or amputation of arm, hand, leg or foot.
- For non-critical injuries, notify your supervisor as soon as possible and ensure an Incident Report is submitted to OHW (Fax: (519) 780-1796) within 24 hours. Incident Report Forms are available through the EHS website at: [http://www.uoguelph.ca/ehs/forms_by_alphabetically](http://www.uoguelph.ca/ehs/forms_by_alphabetically)

**Specific Incidents:**

- **Cuts** – if someone suffers a severe cut, place pressure on the wound, and if possible elevate the wound above the heart.
- **Punctures** – if the object is still lodged in the person’s body, do not remove it. Call 2000 immediately and request medical assistance.
- **Fainting** – if someone is about to faint, have them sit or lie down. If they have fainted in a seated position, steady them and put their head between their knees. If they have fallen to the ground, roll them to their back and elevate the legs 20-30 cm. If someone sustained an injury during the fall, begins convulsing, or does not recover within two minutes, dial 2000 and request emergency medical assistance.
- **Needle sticks** – Rinse the wound for 15 minutes. Determine whether it is a ‘clean’ or potentially ‘dirty’ needle. If the needle was potentially contaminated with an infectious substance, advise the victim to immediately contact Occupational Health and Wellness (x52647) or Student Health Services (x52131) and seek medical treatment. Outside of regular hours, advise the victim to seek immediate medical treatment (i.e. Emergency Room). Prophylaxis for hepatitis and HIV must be started as soon as possible following exposure.
- **Seizures** – help the person to the floor and clear away nearby objects. Try to prevent the person from striking objects in the area and harming themselves during the seizure. Do not attempt to restrain the victim or force anything into their mouth. Placing any object in the mouth of a seizure victim only increases the likelihood of choking. Dial 2000 immediately and request medical assistance; be sure to inform them if the victim is having trouble breathing or any other relevant details.
- **Choking** – call for help. If the airway is only partially obstructed and there is air exchange, encourage the victim to continue coughing. If the airway is fully obstructed administer the Heimlich maneuver.

- **Cardiac emergency** - if someone is showing symptoms of a heart attack (sudden pain in arm, chest, neck or back; pale skin), call 2000 and request an ambulance be sent to your location. Get the person to a sitting position and remove any constrictive clothing. Monitor their pulse and provide reassurance. If the victim goes into cardiac arrest and you are trained, administer CPR until emergency authorities arrive.

### 6.6. Active Threat

If you become aware of a violent situation, such as an armed person on campus:

- If possible, lock yourself in the nearest safe room and stay out of sight.
- If safe to do so, dial 2000 and request help.
- If you are certain you can get to an exit safely, move quickly and evacuate the building.

### 6.7. Power outage

Many of the areas occupied by the College of Biological Science are supplied with back-up power by generator, either from a stand-alone system or via the university’s essential service grid. The time required for back-up power to come on-line is typically about 30 seconds, so if the power does go out, stay where you are for a moment to see if it comes back on. If it doesn’t, check to see if the rest of the building is out as well. If it is a problem in only a portion of the building, have one person contact the Physical Resources work order desk at x53854.

Fume hoods and biosafety cabinets must be closed in a power outage to prevent migration of hazardous aerosols or vapours into the lab. Keep away from the hoods to prevent introducing air currents and minimize exposure to any accumulated vapours or aerosols.

If it is a widespread outage and back-up power has not come on-line, before leaving the lab for any length of time, shut off any open gas valves, compressed air/vacuum valves, light switches, fans, and any other equipment. One person from the department should call Physical Resources to notify them of the outage. Also ensure the rest of the department is notified by informing the chair’s office.

### 6.8. Flood

If you discover a flooded area and it is safe to do so, try to cut off the source of the water. If there is an electrocution hazard (e.g., the water has risen to the level of electrical outlets, submerged electrical cords), evacuate everyone from the area and contact Physical Resources at x53854. Outside of regular hours, notify Campus Police at x52245 or x2000.