

# MIE Health and Safety Manual

**Prepared by:**

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Osmond Sargeant

**Credit:** Much of this manual is based on the *MSE Health and Safety Manual* with permission

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## Emergency Telephone Numbers

Fire Department	911
Ambulance	911
Critical Emergency	911

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**NOTE: If using cell phone, dial 416-978-XXXX**

Campus Safety Department	8-2222
Office of Environmental Health and Safety	8-4467
Hazardous Chemical Control	8-7000
Health Services	8-8030
Physical Plant Maintenance	8-3000
Caretaking	8-6252

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## First Aid Staff and First Aid Kits

Most undergraduate labs have First Aid kits in the lab located **beside** the main doorway. You should familiarize yourself with the location of the kits when first entering the lab.

General department First Aid staff and Kit locations are listed below:

Shawn Miehe	MC78
Jeethandra Anayat	MC78
Tony Ruberto	MC402F

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## Automated External Defibrillator (AED)

An AED, or automated external defibrillator, is used to help those experiencing sudden **cardiac arrest**. It's an easy-to-use medical device that can analyze the heart's rhythm and, if necessary, deliver an **electrical shock**, or defibrillation, to help the heart **re-establish** an effective rhythm. It cannot cause harm or restart the heart.

MIE AED locations:

- 1- Main foyer of the Mechanical Engineering Building
- 2- 8<sup>th</sup> floor hallway of the Bahen Centre, near room BA8116

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## Health and Safety Board

The department Health and Safety board is located outside of MC122 (Hazardous Waste drop off). The board displays information related to departmental health and safety issues such as: Joint Health and Safety Committee minutes, departmental notices, and a copy of the Occupational Health and Safety Act.

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## Preface

This manual is intended to **identify** potential hazards in labs as well as present the **proper responses** to accidents and injuries when they occur. This manual is not intended as an exhaustive or all-inclusive manual of laboratory safety or first-aid. It does review a wide variety of laboratory dangers in order to refresh memories, focus attention, and promote alertness. It is hoped that, in so doing, the ultimate result will be accident **PREVENTION**.

**IMPORTANT NOTE:** This manual outlines some general safety precautions to be taken when working in the various laboratories in the Department and is based on standard laboratory practices. For other topics not covered in the manual, the University of Toronto **Environmental Health and Safety** website should be consulted: <http://www.ehs.utoronto.ca>

Specific Health and Safety procedures related to specific laboratories in the Department are the **direct responsibility** of the Supervisor(s) and/or Principal Investigator(s) of that lab, as outlined in the Occupational Health and Safety Act (<https://www.ontario.ca/laws/statute/90o01>). **Undergraduate** labs are the responsibility of the Undergraduate Lab Manager, Tomas Bernreiter ([tom@mie.utoronto.ca](mailto:tom@mie.utoronto.ca)).

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## Introduction

Safety in the laboratory requires **continuous** attention and effort. The use of new and/or different techniques and equipment requires careful preparation. Reading, instruction, and supervision may be required, possibly in consultation with other people who have special knowledge or experience. Everyone who works in a laboratory has a **responsibility** to learn the health and safety hazards associated with the materials to be used or produced, and with the equipment to be employed.

It is important for you to know what is expected of you and what your responsibilities are regarding safety. In addition, there are safety practices and safety equipment with which you must be thoroughly familiar if you are to work safely in the laboratory. It is **mandatory** to study this manual as a whole and have a working knowledge of its contents.

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## 1 General Laboratory Practices

Lab safety requires a knowledgeable **awareness** of potential hazards. Safety is a collective responsibility and requires the full **co-operation** of everyone in the laboratory. This co-operation means that each student and supervisor (or TA) must observe safety precautions and procedures and should:

- (a) Follow instructions carefully.
- (b) Become familiar with safety procedures precautions and emergency procedures before undertaking any laboratory work.
- (c) Become thoroughly acquainted with the location and use of safety facilities such as fire extinguishers, showers, exits, and eye wash fountains.
- (d) Ensure that necessary safety equipment is readily available and in usable condition. Passages between pieces of equipment should be free from obstructions and access to switches, fire extinguishers and other emergency equipment should not be impeded.
- (e) Become familiar with any equipment operation instructions and all potential hazards involved before beginning any lab work.

Many accidents have resulted from an indifferent attitude, failure to use common-sense, or failure to follow instructions. Be aware of what your neighbours are doing because you may be a victim of their mistakes. Do not hesitate to comment to a neighbour engaging in an unsafe practice or operation. If necessary, consult your supervisor or TA responsible for safety in the specific laboratory.

Unauthorized lab work and horseplay **cannot** be tolerated. Do not run in the laboratory. Do not push. A carrying **container** must be always used, such as a regular carrier or a box, for chemicals and apparatus in transit. This will shield them from shock during any disruption of movement.

It is advisable to remove jewelry such as rings, bracelets, and watches from wrists and hands to prevent contact with electrical sources and catching on laboratory equipment.

Regular **inspections** of correct laboratory practice, storage of chemicals, electrical hazards etc. will be conducted by appointees of the Safety Committee.

## 1.1 Eye Protection

It is advisable that students, instructors, and visitors wear eye protection at all times anywhere in any laboratory (computer labs excluded), even when not performing an experiment. Eye protection involving glasses, goggles, or face shields should be approved by the department before use.

The level of eye protection required depends on many circumstances. For most laboratory work, safety glasses with clear side shields are adequate, provided suitable safety showers or eyewash stations are close at hand. Face shields alone are not considered adequate eye protection and must be used in conjunction with other eye protection.

## 1.2 Ear Protection

Temporary exposure to high noise levels will produce a temporary hearing loss. Long term exposure to high levels produces **permanent** hearing loss. There appears to be no hearing hazard to noise exposure below 80 dB. Exposures above 130 dB are hazardous and should be avoided. Ear muffs offer the highest noise attenuation and are preferred for levels above 95 dB.

Ear plugs are more comfortable and are suitable for noise levels of 80-95 dB. If you suspect that a hearing hazard exists, notify the Office of Environmental Health and Safety and obtain sound level measurements.

## 1.3 Clothing and Hair

Laboratory jackets or coats worn to protect clothing (when required) should be flame resistant. Shoes must have **closed toes** to provide protection. Long hair and loose clothing must be **confined**, and head coverings securely tucked in. Gloves used for experiments in the lab must not be worn in the hallways.

## 1.4 Working Alone

Working alone in a laboratory without supervision can be extremely hazardous. Laboratory work must never be conducted unless another **suitably trained** person is present in the laboratory or in a nearby



office who is aware of your presence. Supervisors and TAs are responsible for the safety of students working under their direction.

## **1.5 Eating or Drinking in Labs**

Eating and Drinking is not permitted in labs. In no case are they permitted in areas where flammable, toxic or radioactive chemicals are in use.

To prevent accidental ingestion of hazardous chemicals, the storage and/or consumption of food and beverages in laboratories is strictly prohibited. Most undergraduate labs allow students to bring and drink water from **resealable** (does not include common disposable coffee cups with lids) containers, provided that the container is sealed after each use.

Note that labs cannot be arbitrarily divided into a 'lab area' and an 'office area'. If there are chemicals present within the room, the entire room must be treated as a laboratory, even if it is primarily used as an office.

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## 2 Electrical Hazards and Safety Procedures

### 2.1 General Electrical Equipment Practices

While electricity is in constant use in the laboratory, significant physical harm or death may result from its misuse. With direct current (D.C.), a person can detect a "tingling" feeling at 1mA and the median "let-go" threshold (the current at which one cannot release the conductor) is 65mA. For 60 Hertz alternating current (A.C.), the values are 0.3 mA and 13 mA respectively. Higher currents produce respiratory inhibition, then ventricular fibrillation, and ultimately cardiac arrest.

If contact with a device results on even a **minute** electrical shock (not static discharge), the device in question should be **disconnected** immediately and the cause ascertained by a competent person trained in electrical safety. Work on electrical devices should be done only after the power has been shut off in such a manner that it cannot be turned on **accidentally**. All laboratory personnel should know the location of circuit breakers and how to cut off all electrical service to a laboratory in case of fire or accident.






















Electrical hazards can be avoided by following these rules:

- Only trained, qualified personnel may repair or modify electrical or electronic equipment.
- Electrical panels and boxes should NEVER be altered or tampered with.
- Access to electrical panels should not be blocked. Minimum 1 meter clearance.
- Never remove the ground pin of a three prong plug.
- The use of extension cords should be used only as a temporary source of power. These cords must be in good condition and protected from mechanical damage. Extension cords on the floor can also become a trip hazard. Care should be taken to cover them with an appropriate cable protector and make them readily visible.
- Frayed wires or cords must not be used.
- Should a circuit breaker trip, the reason it tripped should be investigated before the power is turned on again. If the equipment is at fault or the circuit is overloaded, a qualified electrician must be called to check out the situation.
- Replace a blown fuse with the exact type and rating.
- Be aware that unusually warm or hot outlets may be a sign that an unsafe wiring conditions exists. Unplug any cords to these outlets and do not use until a qualified electrician has checked the wiring.
- Ensure that all wires are dry before plugging into circuits.
- If your equipment will be used in a damp or possibly wet environment, then the circuit being used should have ground fault protection.

## 2.2 Required Electrical Certification Marks

All devices connected to the electrical grid (plug-in or hardwired) must have an **approved** electrical certification mark (CE mark is not approved). Electricians will not install equipment without appropriate certification, and plug-in equipment is checked during lab safety inspections. It is highly recommended to ensure any electrical device is properly certified *before* purchasing. If you have a piece of equipment that is not certified, it is possible to get a **“field evaluation”** certification done. This evaluation will require that the device be disassembled for inspection. All internal components and wiring will be inspected to ensure they have appropriate electrical certification. Any part(s) found to not meet Ontario standards will need to be replaced. Field evaluations are often time consuming and pricey. For more information about electrical safety and certification, contact Osmond Sargeant ([osmond@mie.utoronto.ca](mailto:osmond@mie.utoronto.ca)).

Below are common accepted certification marks (full list available at <https://esasafe.com/electrical-products/recognized-certification-marks/>):

Canadian Standards Association (CSA)						
Intertek Testing Services						
TÜV SÜD America Inc.						
Electrical Safety Authority – Field Evaluation (ESAFE)						
Underwriters’ Laboratories Inc.						
IAPMO Research and Testing, Inc.						

## 2.3 Custom Electrical Equipment

All custom, or "experimental" electrical apparatus must be field evaluated and approved. Any **modification** to an existing certified device will also require a field evaluation.

***Under no circumstances is anyone to tamper with, or work with exposed wiring. Failure to comply with this rule will result in immediate and permanent suspension of access privileges.***

## 2.4 Electrical Fires

General fire procedures are covered in a later part of this manual, however electrical fires require some additional procedures outlined below.

In the event of an electrical fire:

1. Follow general fire procedures (pull fire alarm, evacuate).
2. Unplug the device or shut off power disconnect or breaker.
3. If flames are visible, use a "C" type extinguisher or sand to put out the fire. Never use water.
4. When the fire is extinguished report to Campus Safety at 8-2222.
5. Do not turn on circuit until cause of fire has been established and the fault corrected.

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## 3 Handling Chemicals and Gases

### 3.1 General Laboratory Practices

- a) Wash thoroughly with soap and warm water whenever a chemical comes in contact with your skin.
- b) All chemicals are **potentially** harmful to some degree. Avoid direct contact with any chemical. Some substances now considered “safe” may in the future be found to cause unsuspected long-term disorders. It is especially important to keep chemicals from hands, face, and clothing, including shoes or other foot coverings. Many substances are readily absorbed into the body through the skin and through inhalation. Chemicals can also enter the body through the mouth by **contamination** of the hands and chemicals can be transferred to the eyes from the hands.
- c) Drinking, and eating are forbidden in the laboratory or storage areas because of the possibility of hazardous chemicals getting into the mouth or lungs through contamination.
- d) Before you start using a new chemical, or if you need a refresher on the properties of a chemical you plan to use in the lab, you must consult its **Safety Data Sheet**.
- e) All containers of chemicals must be labeled clearly. Do not use any substance in an unlabeled or improperly labeled container. Unlabeled containers and those with printed labels that have been partly obliterated, scratched over or crudely labeled by hand should be returned to the supervisor. The chemicals must be identified and then either made nonhazardous or disposed of in accordance with existing regulations.
- f) Beakers should be supported by holding them around the side with one hand. If the beaker is 500 ml or larger support it from the bottom with the other hand, and consider using heavy-duty beakers.
- g) Flasks should be grasped by the center neck, never by a side arm. Large flasks (3L) must be supported at the base during use.

### 3.2 Transportation of Gas Cylinders and Containers of Toxic or Flammable Chemicals

Gas cylinders and glass containers of toxic and flammable chemicals must be labeled as to contents and may be moved around the building only using approved methods. Gas cylinders must be **chained** to the transportation cart, and regulators must be removed and replaced with **cylinder caps** before

transportation. On no occasion may a gas cylinder or any container of toxic, flammable or cryogenic material be carried in an elevator with passengers other than the person(s) transporting the materials.

### 3.3 Compressed Gases

Always use the minimum-sized compressed gas cylinder adequate to perform an experiment. When ordering hazardous gases, consider factors such as handling and storage, eye and skin absorption, proper gas regulators, and chemical properties. The publications of the Compressed Gas Association and of major suppliers should be consulted before using compressed gases. The following rules for use of compressed gases apply:

- a) Always wear safety glasses when handling and using compressed gases.
- b) Handle cylinders of compressed gases as high-energy sources and therefore as potential **explosives** or **projectiles**.
- c) When storing or moving a cylinder have the protective cap securely in place to protect the valve stem.
- d) When moving large cylinders, strap them to a properly designed, wheeled cart to ensure stability.
- e) Never use a cylinder that cannot be identified clearly.
- f) Never lubricate, modify, force, or tamper with a cylinder valve.
- g) Suitable racks should be used to hold cylinders at all times.
  - a. Cylinders of all sizes must be **restrained** by straps, chains, or a suitable stand to prevent them from falling.
- h) Under no circumstance should high-pressure gases be directed at a person.
- i) Compressed gas or compressed air should not be used to blow away dust or dirt, the resultant **flying particles** are dangerous.
- j) Rapid release of a compressed gas will cause an unsecured gas hose to whip dangerously and may also build up a static charge that could ignite a combustible gas.
- k) Do not extinguish a flame involving a highly combustible gas until the source of gas has been shut off, otherwise it can re-ignite, causing an explosion.

- l) Promptly remove the regulators from empty cylinders and replace the protective caps at once. Mark the cylinder "Empty".
- m) Never bleed a cylinder completely empty. Leave a slight pressure to keep contaminants out. This is especially important for flammable gases to prevent possible ingress of air.
- n) Use the appropriate regulator on each gas cylinder. Adaptors or modifications can be dangerous.
- o) Oil or grease on the high-pressure side of an oxygen, chlorine, or other cylinder of an oxidizing agent can lead to an explosion.

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## 4 Chemical Spills

### 4.1 General Spills

- a) Immediately alert anyone around you and the supervisor (TA).
- b) All contaminated clothing must be removed **immediately**, and the skin washed with soap and water. Flush skin with water for no less than **five minutes**. Clothes must be laundered before reuse (do not wash with other clothing).
- c) If there is no fire hazard and the material is not particularly volatile or toxic, clean it up as directed by the supervisor (TA).
- d) If a volatile, flammable, or toxic material is spilled, immediately warn everyone to extinguish flames and turn off spark-producing equipment such as brush-type motors. Shut down all equipment and vacate the room until it is decontaminated. Contact the Office of Environmental Health and Safety at 8-7000.

### 4.2 Chemical Spilled on the Body Over a Large Area

Quickly remove all contaminated clothing while using a safety shower. **Seconds count**, and no time should be wasted because of modesty. However, be careful not to spread the chemical on skin and especially the eyes. Immediately flood the affected body area in cold water for at least 15 minutes. Resume if pain returns. Wash off chemicals with a mild detergent and water, but do not use neutralizing chemicals, unguents, creams, lotions, or salves. Get medical attention as soon as possible.

It should be made certain that the medical personnel understand exactly what chemicals are involved. The exact chemical name should be supplied. For example, exposure to hydrochloric acid is very different medically than exposure to hydrofluoric acid, yet both are sometimes called simply "acids".

### 4.3 Chemicals on the Skin

Immediately flush with cold water for no less than five minutes and wash with a mild detergent, preferably soap and water. If a delayed reaction is noted (often the next day), seek medical attention immediately and explain carefully what chemicals are involved.



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## 5 Fire Safety Rules

### 5.1 Precautionary Procedures

1. A fire is any event that produces **smoke** and/or flame for more than 30 seconds. It is not necessary to see visible flame.
2. Know the location of fire exits, fire alarms, fire blankets and extinguishers. Each laboratory should be equipped with at least one extinguisher. Fire extinguishers are primarily for use on fires in their **incipient** stages. Ensure you learn about the proper use of fire extinguishers.
3. Keep all fire doors closed at all times.
4. Do not block access to fire escape routes.
5. Neatness prevents many fires. Fire spreads much faster when it has cluttered waste materials to feed on. Oily rags, waste, or papers improperly stored are important causes of spontaneous combustion. Store these materials in covered metal containers.

### 5.2 Emergency Procedures

1. If a fire starts, **immediately actuate** the nearest fire alarm.
2. Begin **evacuation** of all persons in the lab via staircases - do not take elevator. If time allows, shut off power to any equipment. Shut off gas or other open flames. Turn off hot plates and main gas valve.
3. If the flame is **visible** and while the fire is not too large, you may try to extinguish it with the available extinguishers in the lab. If **one** fire extinguisher is not sufficient to put out a fire, immediately evacuate. Do not attempt to use a second fire extinguisher to put out a fire.
4. If there is no injury, and the fire is contained in a vessel, it can usually be **suffocated** by covering the vessel with an inverted beaker or watch glass. Do not use towels or clothes. Remove nearby flammable materials to avoid possible spread of fire. If the fire is over an area too large to be suffocated quickly and simply, abandon the fire.

5. If your clothes ignite, "**stop, drop and roll**", to smother the flames. Do not run; running only intensifies the flames. When fire blankets are readily available, use them to wrap around yourself to aid in putting out the fire.
6. After you have evacuated the building, call 8-2222.
7. Do not return to the building unless permitted to do so by the Fire Department.

### **5.3 Guide to Classes of Fires and Methods of Extinguishment**

- Class A Fire: Wood, Paper, Textiles and other ordinary combustible materials
  - To extinguish use: Pressurized water, ABC Dry Chemical extinguisher
- Class B Fire: Flammable Liquids: Oils, Solvent, Grease, Paint, etc.
  - To extinguish use: ABC Dry Chemicals, regular Carbon Dioxide, Halon 1211
- Class C Fire: Live or energized Electrical or Electronic Equipment
  - To extinguish use: ABC Dry Chemical extinguisher, Carbon dioxide, Halon 1211 with only minor damage to components
- Class D Fire: Metals: magnesium, aluminum, sodium, potassium, zirconium, titanium, etc.
  - To extinguish use: Sand, Special Metal Extinguishers, Special Metal Powders Do not use ordinary fire extinguishers (ABC) on metal fires because a violent reaction may result.

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## 6 Laser Safety

Laser safety refers to the safe use and handling of lasers to minimize the risk of laser injuries and potentially **permanent damage** to the eyes and skin. Lasers can be hazardous because they have the potential to produce intense light and heat which can cause eye injuries or skin burns. Some lasers can produce beams that are powerful enough to cause serious eye injuries or even blindness if even **diffused reflections** reach the eye. In addition to the risk of eye injuries, lasers can also produce heat that can burn the skin or ignite flammable materials.

It is important to be aware of the potential laser dangers in many MIE labs, as well as the required training, environmental controls, and Personal Protection Equipment (PPE) required to operate lasers safely.

### 6.1 Classification of Lasers Based on Hazard Level

Lasers are classified based on their hazard potential which in turn is based on the radiant energy or power output of the laser. ANSI Z136.1 - 2014 specifies the following classes of lasers:

#### **Laser classifications considered low risk for eye or skin damage:**

- **Class 1:** a laser or working environment incapable of producing damaging radiant energy levels
  - No controls or PPE required
  - No training required
- **Class 2:** a visible (400 -700 nm) laser which cannot exceed the Maximum Permissible Exposure (MPE) for ocular exposure times less than 0.25 s (i.e. accidental viewing)
  - Do not stare directly into beam
  - No training required
- **Class 1M, 2M (visible light), 3R:** a laser incapable of producing damaging radiant energy levels except with the use of optical viewing devices (magnifying glass, etc.)
  - Low probability of injury
  - Do not allow direct beam into eyes
  - No training required

## Lasers classifications with **high risk** for temporary or permanent eye or skin damage:

- **Class 3B:** a laser whose output exceeds 5 times the ocular MPE
  - Visible or invisible light
  - Eye Hazard if:
    - Direct viewing of beam
    - Specular reflection (mirror or other highly reflective surface) viewing
  - Courses **required** for operation of Class 3B laser:
    - Laser Safety Theory (EHS736 or EHS737)
    - Laser Safety Practical (EHS738)
    - Visit <https://ehs.utoronto.ca/our-services/laser-safety/laser-safety-training-courses/>
  
- **Class 4:** a laser whose output exceeds the limits of Class 3B lasers
  - Visible or invisible light
  - Eye Hazard if:
    - Direct viewing of beam
    - Specular reflection (mirror or other highly reflective surface) viewing
    - Diffuse reflection (rough surface) viewing
  - Skin Hazard
  - Fire Hazard
  - Laser generated air contaminant hazard
  - Hazardous plasma radiation
  - Courses **required** for operation of Class 4 laser:
    - Laser Safety Theory (EHS736 or EHS737)
    - Laser Safety Practical (EHS738)
    - Visit <https://ehs.utoronto.ca/our-services/laser-safety/laser-safety-training-courses/>

## 6.2 Laser Safety Program and Required Training

The Laser Safety Program is intended to assist the U of T community in the effective control of laser hazards. This program applies to all Class 3B and Class 4 laser and laser systems in, and all those identified as Permit Holders, laser supervisors, laser users, and other persons present in the laser laboratory.

The basic elements of the control program are:

- a. **registration** of all Class 3B and Class 4 laser/laser systems regardless of the origin (bought, gift, borrowed, etc.). This includes lasers embedded in homemade enclosures;

- b. implementing a laser safety **permit** system for all class 3B and class 4 lasers;
- c. the requirement for **inspections** of Class 3B and Class 4 laser/laser systems;
- d. the requirement for **training and education** of laser users;
- e. the requirement for **reporting** accidents/incidents involving all Class 3B and Class 4 laser/laser systems;
- f. provision of medical surveillance;
- g. the requirement for personal protective equipment;
- h. the requirement for engineering controls;
- i. the requirement for administrative and procedural controls;
- j. the requirement for **auditing** the implementation and effectiveness of the program.

All laser users and laser supervisors must participate in the U of T's Laser Safety Program training before operating or working in proximity to Class 3B or Class 4 laser/laser systems. At a minimum operators of Class 3B or Class 4 lasers must complete: Laser Safety Theory (EHS736 or EHS737), and Laser Safety Practical (EHS738). Laser training is valid for **3 years**.

Lab users working in the vicinity, **but not operating**, lasers must complete: Laser Safety Awareness (EHS739 online).

Enrolling in ESH training courses is done through MyEHS: <https://ehs.utoronto.ca/training/my-ehs-training/>

### **6.3 Laser Hazard Control and Signage**

The preferable way to control a laser hazard is at the source by using:


- Enclosures
- Locks, interlocks, reset buttons, etc.

Alternatively, it is possible to separate the rest of the room/lab by using:

- Curtains
- Barriers

Labs utilizing Class 3B and Class 4 lasers must have warning **signage** on the entrance. Labs with Class 4 lasers must employ "Laser in Use" **warning lights** and signage.

The preceding information is only an **introduction** to laser safety. For more information about Laser Safety, visit the EHS site: <https://ehs.utoronto.ca/our-services/laser-safety/>

 <b>WARNING</b>	
	<b>Class 3B Laser Controlled Area</b> Avoid direct eye exposure to beam
	Laser eye protection required: OD $\geq 3$ @ 670 nm Diode, laser 670 nm 400 mW maximum average power Laser Safety Officer _____ Ext. _____

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## 7 Injuries and Emergencies

### 7.1 Minor Injury

In the case of **minor** injury (small cut, sprain, etc.) use the First Aid Kit in the lab to provide assistance. **Report** accident to the lab supervisor. All incidents/accidents, including minor ones, must be reported to ensure all reasonable steps are taken to prevent similar future accidents.

### 7.2 Serious Injury

A serious injury is one which results, or has the **potential** to result, in lost time from work/school. This includes: any hit on the head, small bone fractures (toe, finger, but not leg or arm), serious cuts that may require stitches and follow-up medical care, etc. In case of serious but non-critical injury, call Campus Safety at 8-2222. Provide first aid within the scope of your training. Follow any instructions provided by Campus Safety. A serious injury **must** be reported to the lab supervisor as soon as possible under both the Occupational Health and Safety Act and the Workplace Safety and Insurance Act.

### 7.3 Critical Injury

A critical injury is one which:

- places life in jeopardy
- produces unconsciousness
- results in substantial loss of blood
- involves the fracture of a leg or arm (but not a finger or toe)
- involves the amputation of a leg, arm, hand or foot (but not a finger or toe)
- consists of burns to a major portion of the body, or
- causes the loss of sight in an eye

In case of critical injury, summon professional medical attention **immediately** by calling 911 from your cell phone, or 9-911 using the lab's emergency phone. Do not call Campus Safety. Do not attempt to move the injured person unless in danger of further injury. Provide first aid within the scope of your training while waiting for professional help to arrive. Be prepared to describe accurately the nature of the accident. All personnel should know how to use emergency equipment such as fire extinguishers, spill kits, safety showers, and eye wash apparatus.

After providing all necessary medical assistance, **secure** area to ensure site of accident remains undisturbed and then call Campus Safety at 8-2222.

Critical injuries must be immediately reported to the lab supervisor and the Ministry of Labour (MOL).

The lab supervisor must:

- Notify Environmental Health and Safety at 416-978-4467 (who will liaise with the Ministry of Labour)
- Notify Health & Well-Being Programs & Services at 416-978-8804
- Notify the appropriate Joint Health and Safety Committee at the workplace
- If the injured person is an employee, notify the appropriate union (if any)
- Ensure the site of the accident remains **undisturbed** until a MOL inspector has arrived, and
- Investigate and prepare a written report on the circumstances of the accident.



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## 8 First Aid Treatment

There are certain serious injuries in which time is so important that treatment must be started immediately. These injuries include stoppage of breathing, severe bleeding, thermal and chemical burns and traumatic shock. This section provides basic instructions on how to provide critical care while waiting for professional help to arrive. It is not intended as a comprehensive manual or substitute for First Aid training!

### 8.1 Unconsciousness

There are many possible reasons for unconsciousness. Immediately call 911. If you are in the Mechanical Engineering building, mention that you have access to an AED (Automated External Defibrillator). If instructed to use the AED by the 911 dispatcher, retrieve the AED from the lobby MC lobby or BA 8th floor outside of BA8116 and follow the instructions inside the unit. Seconds count; move quickly but do not run.

### 8.2 Severe Bleeding

Severe bleeding can almost always be controlled by firm and direct pressure on the wound with a pad or cloth. The cleaner the cloth the more desirable, however, in an emergency use part of clothing. The pad or cloth will absorb blood and allow it to clot. Never disturb clots formed within the pad. If blood soaks through pad without clotting, don't remove it, just add additional pads and continue pressing more firmly. Call 911 immediately for medical attention. Raise the bleeding part higher than the rest of the body if possible. Keep victim lying down. Never use a tourniquet.

### 8.3 Thermal Burns

Burns are classified by depth ("degree") of skin damage.

- **Superficial** (1<sup>st</sup> degree) burns result from hot objects or scalding.
  - Signs: redness or discoloration, mild swelling, pain.
- **Partial-thickness** (2<sup>nd</sup> degree) burns result from heavier contact with hot objects or flash burns from gasoline and kerosene.
  - Signs: greater depth than first-degree burns; red or mottled appearance; blisters; a "wet" look. Usually hurts more than deeper burns because nerve endings aren't destroyed.
- **Full-thickness** (3<sup>rd</sup> degree) burns show deep tissue destruction.
  - Signs: white or charred look; complete loss of all layers of skin.

### ***Superficial burn aid***

- a) Use cold water applications or submerge burned part in cold water.
- b) Apply a dry dressing if necessary.

### ***Partial-thickness burn aid***

- a) Submerge part in cold water until pain subsides.
- b) Apply freshly laundered clothes wrung out in ice water.
- c) Gently blot dry.
- d) Apply dry sterile gauze or clean cloth as bandage.
- e) If arms or legs are affected, raise them.
- f) NEVER break blisters or remove tissue. NEVER use an antiseptic preparation, ointment, or spray.

### ***Full-thickness burn aid***

- a) Do not remove adhered particles of charred clothing from burned area.
- b) Cover burns with thick sterile dressings or freshly laundered sheets.
- c) Keep burned hands elevated above level of heart. Keep burned feet or legs elevated (do not let victim walk).
- d) Have victim with face burns sit up or prop them up. Keep her/him under constant observation for breathing issues. If problem develops, maintain open airway.
- e) Do not submerge a large burned area or use ice-water. This may increase the risk of shock. You may apply a COLD PACK to face, hands or feet.
- f) Quickly arrange transportation to hospital.
- g) Do not apply ointment, commercial preparations, grease or any other "remedy."

In the case of clothing fire, the victim should "Stop, Drop, and Roll", not run to a safety shower. A fire blanket, if nearby, should be used to smother the flames. After flames are extinguished, deluge the injured under a safety shower, removing any clothing contaminated with chemicals. Keep the water running on the injured for 15 minutes to remove heat and to wash off chemicals. Place clean, soaking wet, cloths on burned areas, and wrap to avoid shock and exposure.

## 8.4 Traumatic Shock

In cases of traumatic shock, or where the nature of the injury is not clear, keep the victim warm, lying down, legs raised and quiet. Wait until medical assistance arrives before moving the victim. Body functions are depressed, and death may result even if injuries would not otherwise be fatal. Look for:

- Pale or bluish skin. (In dark-skinned victim, check mucous membranes inside mouth or under eyelids.)
- Moist or clammy skin.
- Rapid Pulse, often too faint to be felt at wrist.
- Increased breathing rate. Shallow if there's chest or abdominal pain.
- Weakness. If due to hemorrhage, victim may also be restless and anxious. Will complain of deep thirst.
- Retching or vomiting.
- In late stages, victim is apathetic and unresponsive: eyes are sunken and vacant: pupils dilated. Skin gets mottled look.

### ***Prevent chill***

Keep victim warm enough to prevent chilling, but never add extra heat - raising the body temperature in traumatic shock is harmful.

### ***Give fluids***

Give fluids by mouth if medical help will not be available in an hour or more. Give lukewarm water. Have them sip very slowly. NEVER give fluids if victim is unconscious, vomiting or convulsing, or has abdominal injury.

## 8.5 Convulsions

- Call 911.
- Do not attempt to restrain the victim: just position her/him in such a way that they will not injure themselves by knocking against objects. This is especially important for the head, however convulsions are powerful, do not use your hands to attempt to cushion any blows, injury to your hand will most likely result.
- Loosen clothing at neck and waist.
- Watch for obstruction of airway and correct it by head positioning.
- Do not force a finger between her/his teeth. Do not give fluids. Do not induce vomiting. (If the victim is vomiting, position the head so that the material drains.)
- After the convulsion, place in prone position with head turned to allow fluids to drain.

## **8.6 Eye Aid**

Flush out with water at once. Pour lukewarm water gently into inside corner of the victim's eye and tilt head so that water flows across eyeball and off the face. Use an eye wash station, container of water, or a tap that is 2 or 3 inches above eye. Do this for **15 minutes**. (Victim can also use shower to wash eyes.) Call Campus Safety at 8-2222.

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## 9 WHMIS

### 9.1 Background

The Workplace Hazardous Materials Information System - WHMIS - is part of your right to know about the hazards of the chemicals you work with.

Under the Occupational Health and Safety Act, if you work with chemicals, you must receive training on the Workplace Hazardous Materials Information System. Your **supervisor** will ensure that you are provided with WHMIS training before you start working with the chemicals. In addition, lab users should consult the EHS Training Matrix (<https://ehs.utoronto.ca/training/laboratory-personnel/>) to select EHS training relevant to the lab activities.

This chapter is an introduction to WHMIS. Anyone working in a lab with chemicals must take the Environmental Health and Safety WHMIS training course **EHS101**, or **EHS112** refresher **yearly**.

WHMIS provides this information by means of 3 main components

- a) Hazard identification and product classification
- b) Labeling of chemical containers.
- c) Safety Data Sheets (SDS) which contain comprehensive health and safety information on the chemicals.
- d) WHMIS education and training.

### 9.2 Classification

There are at least three possible levels of classification for an individual product. Moving from the most general classification to more specific ones, these levels are:

- hazard group
- hazard class
- hazard category
- in some cases, hazard subcategory.

WHMIS applies to two major groups of hazards: **physical**, and **health**. Each hazard group includes hazard classes that have specific hazardous properties.

- Physical hazards group: based on the **physical** or **chemical** properties of the product – such as flammability, reactivity, or corrosivity to metals.

- Health hazards group: based on the ability of the product to **cause a health effect** – such as eye irritation, respiratory sensitization (may cause allergy or asthma symptoms or breathing difficulties if inhaled), or carcinogenicity (may cause cancer).

There is also an Environmental hazards group. This group (and its classes) was not adopted in WHMIS. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDSs). Including information about environmental hazards is allowed by WHMIS.

Most hazard classes are further subdivided into categories and subcategories based on the severity of the hazard. Most categories are identified by a number and subcategories by a number and letter. The lower the category number, the more severe the hazard, with **Category 1** being the most hazardous. For example, a product classified as a Flammable Liquid-Category 1 is **more** hazardous than a Flammable Liquid-Category 2.

### 9.3 Pictograms

Pictograms are graphic images that immediately show the user of a hazardous product what type of hazard is present. With a quick glance, you can see, for example, that the product is flammable, or if it might be a health hazard.

Most pictograms have a distinctive red "square set on one of its points" border. Inside this border is a symbol that represents the potential hazard (e.g., fire, health hazard, corrosive, etc.). Together, the symbol and the border are referred to as a pictogram. Pictograms are assigned to specific hazard classes or categories.

The graphic below shows hazard pictograms. The bold type is the name given to the pictogram; the words in the brackets describe the hazard.



**Exploding bomb**  
Explosion or reactivity hazards



**Flame**  
Fire hazards



**Flame over circle**  
Oxidizing hazards



**Gas cylinder**  
Gases under pressure



**Corrosion**  
Corrosive damage to metal, skin, eyes



**Skull and crossbones**  
Death or toxicity with short exposure to small amounts



**Health Hazard**  
May cause or suspected of causing serious health effects



**Exclamation Mark**  
May cause less serious health effects



**Environment\***  
May cause damage to the aquatic environment



**Biohazardous infectious materials**  
Organisms or toxins that can cause diseases in people or animals

 \* The environment pictogram is not required by WHMIS 2015 but may be used.

## 9.4 Labels



WHMIS legislation requires that products used in the workplace that meet the criteria to be classified as hazardous products must be labelled. Labels are the first alert to the user about the major hazards associated with that product, and outline the basic precautions or safety steps that should be taken.

There are two main types of WHMIS labels: **supplier** labels, and **workplace** labels.

Suppliers of hazardous products are required to apply a label that meets the requirements of the Hazardous Products Regulations. If the hazardous product is always used in the container with the supplier label, no other label is required.

# Supplier Labels (affixed by supplier)

**1 Product K1 / Produit K1**

**2**  

**3 Danger**

**4** Fatal if swallowed.  
Causes skin irritation.

**5** **Precautions:**  
Wear protective gloves.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
  
Store locked up.  
Dispose of contents/containers in accordance with local regulations.  
  
IF ON SKIN: Wash with plenty of water.  
If skin irritation occurs: Get medical advice or attention.  
Take off contaminated clothing and wash it before reuse.  
IF SWALLOWED: Immediately call a POISON CENTRE or doctor.  
Rinse mouth.

**Danger**  
Mortel en cas d'ingestion.  
Provoque une irritation cutanée.

**Conseils :**  
Porter des gants de protection.  
Se laver les mains soigneusement après manipulation.  
Ne pas manger, boire ou fumer en manipulant ce produit.  
  
Garder sous clef.  
Éliminer le contenu/réceptacle conformément aux règlements locaux en vigueur.  
  
EN CAS DE CONTACT AVEC LA PEAU : Laver abondamment à l'eau.  
En cas d'irritation cutanée : Demander un avis médical/consulter un médecin.  
Enlever les vêtements contaminés et les laver avant réutilisation.  
EN CAS D'INGESTION : Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.  
Rincer la bouche.

**6** Compagnie XYZ, 123 rue Machin St, Mytown, ON, N0N 0N0 (123) 456-7890

## 1. Product identifier

Product name matching the SDS

## 2. Hazard pictograms

Graphics that alerts the reader to the type of hazard present

## 3. Signal words

“Danger” or “Warning” to emphasize hazards and indicate its severity

## 4. Hazard Statements

Standardized statements describing most significant hazards of the product

## 5. Precautionary Statements

Measures to take to minimize or prevent adverse effects from exposure to product

## 6. Supplier Identification

Company responsible for the label and SDS

A workplace label is required when:

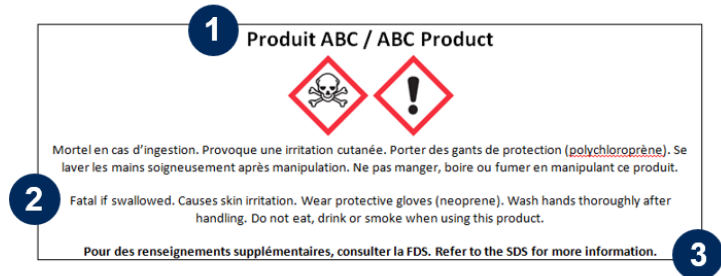
- a hazardous product is produced (made) at the workplace and used in that workplace,
- a hazardous product is decanted (e.g., transferred or poured) into another container, or
- a supplier label becomes lost or illegible (unreadable).



# Workplace Labels

**Workplace labels** are required to be on the container of a hazardous products when a hazardous product is:

- Created and used in the workplace
- Transferred into another container
- A supplier label is missing or becomes illegible



## 1. Product identifier

Product name matching the SDS

## 2. Safe handling precautions

Measures to minimize or prevent adverse effects from exposure to product. May include pictograms

## 3. Reference to SDS

Statement that the SDS is available

## 9.5 Safety Data Sheets (SDS)

Safety Data Sheets (SDSs) are summary documents that provide information about the hazards of a product and advice about safety precautions. SDSs are usually written by the manufacturer or supplier of the product.

SDSs provide more **detailed** hazard information about the product than the label. Use this information to identify the hazards of the products you use and to protect yourself from those hazards, including safe handling and emergency measures.

SDSs tell users what the **hazards** of the product are, how to use the product **safely**, what to expect if the recommendations are not followed, how to recognize **symptoms** of exposure, and what to do if **emergencies** occur. A SDS will have 16 sections as outlined below:

## 16 Sections of an SDS

1. Identification	9. Physical and Chemical properties
2. Hazard Identification	10. Stability and Reactivity
3. Composition / Ingredient Information	11. Toxicological Information
4. First Aid Measures	12. Ecological Information
5. Fire Fighting Measures	13. Disposal Considerations
6. Accidental Release Measures	14. Transport Information
7. Handling and Storage	15. Regulatory Information
8. Exposure Controls / Personal Protection	16. Other Information

Section 4 and 8 are of particular interest. Section 4 outlines the First Aid measures in the event of an exposure to the hazardous product. Section 8 will outline any **personal protective equipment** or **environmental controls** required to use the product safely.

For more WHMIS information visit: [https://www.ccohs.ca/oshanswers/chemicals/whmis\\_ghs/](https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/)

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## 10 Health and Well-being

### 10.1 A Guide for Faculty and Staff

## U of T Engineering Student Well-being Resources

### A guide for faculty and staff

The Faculty of Applied Science & Engineering is committed to fostering a culture of care and support as students navigate mental health challenges.

Amidst the COVID-19 global pandemic, there are additional challenges and changes to procedure and practice that staff and faculty may encounter when supporting students.

The University's “**Identify, Assist, Refer**” approach and U of T Engineering's offerings of **LivingWorks Start** will help you to recognize when someone is experiencing a mental health challenge. Both of these trainings can provide guidance in offering assistance and facilitating help-seeking behaviours.

This guide outlines additional considerations as you are supporting students navigating mental health challenges.

To contribute a U of T Engineering mental health resource to this guide or to [www.uofteng.ca/mentalhealth](http://www.uofteng.ca/mentalhealth), please email: [mentalhealth@engineering.utoronto.ca](mailto:mentalhealth@engineering.utoronto.ca)

Last updated September 2021

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#### REFERENCES:

Adapted from the *University of Toronto's Identify Assist Refer Online Quick Reference Guide*  
<http://iar.utoronto.ca>

Suicide Prevention Training, Implement, and Evaluation group at the Center for Practice Innovations at Columbia University/New York State Psychiatric Institute (NYSPI-CPI). (2020, March 25). Telehealth Tips: Managing Suicidal Clients During the COVID-19 Pandemic. <https://mhanys.org/wp-content/uploads/2020/03/NYSPI-CPI-Telehealth-Tips-with-Suicidal-Clients-03-25-20.pdf>

# U of T ENGINEERING RESOURCES

Below are Engineering-specific resources to support mental wellness and assist students in need.  
Read more: [www.uofteng.ca/mentalhealth](http://www.uofteng.ca/mentalhealth)

## FIRST-YEAR ADVISORS

[www.uoft.me/fyo](http://www.uoft.me/fyo)

A team of advisors, including **Leslie Grife**, **Jennifer Fabro**, **Todd Le Blanc** and **Hannah de Haan** support engineering students throughout their first year. **JesusMiracle Chidika**, **First Year Advisor, Intercultural Learning & Experience** supports first-year international students. Students can book virtual appointments and engage in FYO Live Chat. First-year EngSci students should connect with **Stephen Johns** (for domestic students) or **Justina Lee** (for international students).

## DEPARTMENTAL UNDERGRADUATE ADVISORS

[www.uoft.me/engadvisors](http://www.uoft.me/engadvisors)

Provides support to engineering students in second, third and fourth year within academic departments on personal, career and academic matters. Follow the link for a full list of advisors.

## DEPARTMENTAL GRADUATE ADMINISTRATORS

[www.uoft.me/gradadmin](http://www.uoft.me/gradadmin)

Provides support to grad students within engineering academic units. Follow the link for a full listing of advisors across the departments.

## LEARNING STRATEGIST

**Shahad Abdulnour**

[www.uoft.me/englearningstrategist](http://www.uoft.me/englearningstrategist)

Offers appointments and programming to assess and enhance engineering undergrads' academic skills related to task-management, critical thinking, test/exam prep and coping with academic-related stress and anxiety.

## FINANCIAL AID ADVISING

**Pierina Filippone**

[www.uoft.me/engfinance](http://www.uoft.me/engfinance)

Students can access a collection of resources around financial aid, scholarships, financial planning and taxes at the URL above. Students can also email questions to: [awards@engineering.utoronto.ca](mailto:awards@engineering.utoronto.ca)

## INCLUSION & TRANSITION ADVISOR

**Mikhail Burke**

[www.uoft.me/inclusionadvisor](http://www.uoft.me/inclusionadvisor)

Assists students who may be experiencing barriers to their transition into and inclusion within the Faculty.

## HEALTH & WELLNESS ENGINEERING COUNSELLOR

[www.uoft.me/wellnessadvisor](http://www.uoft.me/wellnessadvisor)

Through self-referral (416-978-8030) or a referral by a first-year or departmental advisor, students can access mental health counselling care options with the Engineering Counsellor or other clinicians at Health & Wellness.

## ON-LOCATION ADVISOR, ACCESSIBILITY SERVICES

[www.uofteng.ca/onlocationaccessibility](http://www.uofteng.ca/onlocationaccessibility)

Students registered with U of T's Accessibility Services can access services including the On-location Accessibility Advisor. First-year and departmental advisors can assist students in completing the Intake Package if required.

## MENTAL HEALTH PROGRAMS OFFICER

**Melissa Fernandes**

[www.uoft.me/MHPO](http://www.uoft.me/MHPO)

Builds capacity to support student mental health and well-being by offering mental health programs and training, conducting research and offering best practice insights.

## EQUITY, DIVERSITY & INCLUSION (EDI) INITIATIVES

[www.uoft.me/EDI](http://www.uoft.me/EDI)

Provides resources and raises awareness to realize our commitment to equity, diversity and human rights. The Faculty's incident disclosure form can be accessed at [uoft.me/engdisclosure](http://uoft.me/engdisclosure)

## SKULE MENTAL WELLNESS

[www.wellness.skule.ca](http://www.wellness.skule.ca)

Student group that advocates for mental health and wellness within U of T Engineering. They create student resources, events, workshops and activities.

## GECoS MENTAL WELLNESS COMMISSION

[www.uoft.me/gecoswellness](http://www.uoft.me/gecoswellness)

The Graduate Engineering Council of Students (GECoS) Mental Wellness Commission provides advocacy, education and socials.

# GENERAL RESOURCES

**24/7** Available 24/7 (all others open during business hours; check online for details)

## **24/7** MY STUDENT SUPPORT PROGRAM (MY SSP)

1-844-451-9700 or dial 001-416-380-6578 from outside North America  
[www.uoft.me/myssp](http://www.uoft.me/myssp)

App Downloads: [Android](#) | [Apple](#)

Immediate counselling in 35 languages; ongoing professional counselling support in 146 languages; chat-based support in four languages.

## **24/7** GOOD2TALK STUDENT HELPLINE

1-866-925-5454 or text GOOD2TALKON to 686868  
[www.good2talk.ca](http://www.good2talk.ca)

Professional counselling and trained crisis responders; offers info and referrals for mental health, addictions and student well-being.

## **24/7** DISTRESS CENTRES

416-408-4357  
[www.torontodistresscentre.com](http://www.torontodistresscentre.com)

Provides crisis, emotional support and suicide prevention, as well as intervention and postvention services.

## **24/7** GERSTEIN CENTRE MENTAL HEALTH CRISIS LINE

416-929-5200  
[www.gersteincentre.org](http://www.gersteincentre.org)

Provides mental health crisis support, strategies for addressing immediate problems, and connections to ongoing support services.

**COMMUNITY SAFETY OFFICE**  
416-978-1485  
[www.communitysafety.utoronto.ca](http://www.communitysafety.utoronto.ca)

Virtual appointments. Responds to students, staff and faculty who have personal safety concerns.

## STUDENT MENTAL HEALTH RESOURCE

[www.mentalhealth.utoronto.ca](http://www.mentalhealth.utoronto.ca)

Access to services, events and tool-kits around mental health, including access to Navi, a virtual mental health navigator: [www.uoft.me/navi](http://www.uoft.me/navi)

## HEALTH & WELLNESS CENTRE

416-978-8030  
[www.healthandwellness.utoronto.ca](http://www.healthandwellness.utoronto.ca)

Virtual programming and appointments. Confidential mental health and physical health services provided by an interdisciplinary team of health professionals.

## ACCESSIBILITY SERVICES

416-978-8060  
[www.studentlife.utoronto.ca/as](http://www.studentlife.utoronto.ca/as)

Virtual programming and appointments. Confidential service that helps students navigate their disability and its related barriers.

## SEXUAL VIOLENCE PREVENTION & SUPPORT CENTRE

416-978-2266  
[www.svpscentre.utoronto.ca](http://www.svpscentre.utoronto.ca)

Virtual appointments. Facilitates access to support, services and accommodations for students, staff and faculty who have experienced sexual violence.

## ACADEMIC SUCCESS

[www.uoft.me/academicsuccess](http://www.uoft.me/academicsuccess)

Appointments, workshops and resources designed to support the academic success of undergraduate and graduate students.

## HOUSING

416-978-8045  
[www.studentlife.utoronto.ca/hs](http://www.studentlife.utoronto.ca/hs)

Virtual programming and appointments. Offers information, resources and support to meet student housing goals.

## CENTRE FOR INTERNATIONAL EXPERIENCES

416-978-2564  
[www.studentlife.utoronto.ca/cie](http://www.studentlife.utoronto.ca/cie)

Virtual programming and appointments. Support for students abroad and international students.

## INDIGENOUS STUDENT SERVICES

416-978-1893  
[www.studentlife.utoronto.ca/fnh](http://www.studentlife.utoronto.ca/fnh)

Virtual programming and appointments. Provides culturally relevant services to Indigenous students in support of academic success and personal growth.

## SEXUAL & GENDER DIVERSITY OFFICE

416-946-5624  
[www.sgdo.utoronto.ca](http://www.sgdo.utoronto.ca)

Virtual programming and appointments. Develops partnerships to build supportive learning and working communities at U of T by working towards equity and challenging discrimination.

## MULTI-FAITH CENTRE

416-946-3120  
[www.studentlife.utoronto.ca/mf](http://www.studentlife.utoronto.ca/mf)

Virtual programming. Supports the spiritual well-being of students, staff and faculty and increases understanding of and respect for religious beliefs and practices.

# WHAT TO DO IF...

## SOMEONE'S BEHAVIOURS, THOUGHTS & FEELINGS RAISE SPECIFIC SAFETY CONCERNS

In accordance with **U of T's IAR Training**, behaviours, thoughts and feelings that raise specific safety concerns include:

- Vague or overt references to harming self or others
- Vague or overt references to thoughts of suicide
- Confusion, disorientation, apparent disconnect from reality
- Expressions of hopelessness, helplessness, worthlessness

If you are unsure whether there is a specific safety concern, directly and openly ask the student (e.g., "Have you self-harmed recently?", "Are you thinking about suicide?", "Are you feeling confused or disoriented right now?", "Does your situation make you feel hopeless, helpless or worthless?").

## YOU SUSPECT A SAFETY CONCERN, PRIOR TO INITIATING CONTACT WITH A STUDENT

- Develop a plan prior to initiating contact. This may involve reaching out to **Melanie Carrington**, the Faculty's Critical Incident Coordinator.

### DID YOU KNOW?

**Melanie Carrington**, Faculty Critical Incident Coordinator, is available to help you intervene in any of the scenarios above: **416-435-8563** or [melanie.carrington@utoronto.ca](mailto:melanie.carrington@utoronto.ca)  
For after-hours support, you can also contact **My SSP**.

## YOU'RE CONCERNED THERE IS RISK TO SOMEONE'S SAFETY

- ① **Directly connect** the student to someone in a position to help (i.e., a service listed in the **EMERGENCY & URGENT RESOURCES** section on page 5).

*NOTE: If the person disconnects from or leaves the conversation because they do not wish to be connected to the resource, continue making the connection without them. The urgent/emergency resource will support you in continuing to support this student.*

- ② **Pass along** any critical info that you have gathered. By openly sharing, you are allowing the student to correct any misinformation and provide additional detail.
- ③ **Take direction** from both the person you have connected them to and the student to determine whether it is best to stay or disconnect/leave.
- ④ **Connect with your supervisor** to let them know what happened, determine additional steps and let them know how you are doing.
- ⑤ **Follow-up** with the student to determine if the connection was helpful and/or if any additional resources are required.
- ⑥ **Seek help for yourself.** Consider accessing resources offered through the Employee & Family Assistance Program (EFAP), if applicable to you. Alternatively, Connex Ontario (1-866-531-2600) is a service that provides system navigation information and could help to find the right mental health service for you.

# EMERGENCY & URGENT RESOURCES

If you identify indicators that raise specific safety concerns, the situation needs to be treated with urgency. Connect the student to someone who is able to help. If they are unwilling to access these resources, you can contact these services to determine next best steps. If you fear for their safety as a result of engaging these resources, determine safer options and/or the ways you can enact the **5-Ds of Bystander Intervention**.

## EMERGENCY

### **24/7 U OF T CAMPUS SAFETY – SPECIAL CONSTABLE SERVICE**

416-978-2222  
21 Sussex Ave., Suite 100  
[www.campusafety.utoronto.ca](http://www.campusafety.utoronto.ca)

Dedicated to creating a safe, secure and equitable environment for all community members.

Call 911 in situations requiring immediate police, fire or medical response to preserve life or property.

To ensure prompt service, contact Campus Safety after calling 911.

### **24/7 CAMH PSYCHIATRIC EMERGENCY DEPARTMENT**

416-535-8501 | 1051 Queen St. W  
[www.camh.ca/en/your-care/programs-and-services/emergency-department](http://www.camh.ca/en/your-care/programs-and-services/emergency-department)

Emergency service for adults with mental health and substance issues.

### **24/7 EMERGENCY SERVICES**

Dial: 911 | [www.crtc.gc.ca/eng/phone/911](http://www.crtc.gc.ca/eng/phone/911)

For life-threatening emergencies or incidents occurring in the moment where you need police, fire or ambulance. If responding on campus, also contact Campus Safety - Special Constable Service.

In emergency or urgent situations, contact **MELANIE CARRINGTON, FACULTY CRITICAL INCIDENT COORDINATOR: 416-435-8563** or [melanie.carrington@utoronto.ca](mailto:melanie.carrington@utoronto.ca). Melanie provides assistance to faculty and staff faced with varied interpersonal issues and crises, When you contact Melanie with concerns, she will help ensure that relevant resources are provided and appropriate follow-up occurs.

## URGENT

### **STUDENT CRISIS RESPONSE, PROGRESS & SUPPORT**

416-946-7111  
Note: after hours, leave a voicemail for return the following business day

A consultative and supportive resource for staff and faculty who are concerned about a student who is overwhelmed or in crisis, exhibiting disturbing behaviour, or referencing suicide or violence. Please connect with your supervisor before connecting with this resource, as they may hold additional information.

### **24/7 MY STUDENT SUPPORT PROGRAM (MY SSP)**

1-844-451-9700 (North America)  
001-416-380-6578 (outside North America)  
[www.uoft.me/myssp](http://www.uoft.me/myssp)

My SSP offers immediate multilingual counselling support for students and after-hours consultation support available for faculty and staff.

### **HEALTH & WELLNESS CENTRE**

416-978-8030  
[www.healthandwellness.utoronto.ca](http://www.healthandwellness.utoronto.ca)

Virtual appointments. Confidential mental health and physical health services provided by an interdisciplinary team of health professionals.

### **YOUR IMMEDIATE SUPERVISOR**

Whether a referral is made or not, if you are supporting someone as a result of your role, it might be helpful to inform your supervisor or other appropriate contact within your unit. This could help to facilitate coordinated care as well as to help ensure you feel supported.

Please have the following details ready:

- Supervisor's Name: \_\_\_\_\_
- Supervisor's Contact: \_\_\_\_\_

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# Appendix A: Occupational Health and Safety Act

## Introduction

The Occupational Health and Safety Act protects workers against health and safety hazards on the job. Within the University of Toronto, “worker” means graduate students, undergraduate students, Post-Doctoral Fellows, Visitors to the University, summer students, volunteer students and any other person supervised.

Workers and employers must share the responsibility for occupational health and safety. This concept of an **internal responsibility system** is based on the principle that the workplace parties themselves are in the best position to identify health and safety problems and to develop solutions.

Ideally, the internal responsibility system involves everyone, from the company chief executive officer to the worker. How well the system works depends upon whether there is a complete, unbroken chain of responsibility and accountability for health and safety.

## The Rights of Workers

Workers have the duty to follow all safety regulations or procedures within the workplace. To balance the employer’s general right to direct the work force, the Act gives four basic rights to workers.

### *The right to participate*

Workers have the right to be part of the process of identifying and resolving workplace health and safety concerns. This right is expressed through worker membership on joint health and safety committees, or through worker health and safety representatives.

### *The Right to Know*

Workers have the right to know about any potential hazards to which they may be exposed. This means the right to be trained and to have information on machinery, equipment, working conditions, processes and hazardous substances. The parts of the Act that implement the Workplace Hazardous Materials Information System (WHMIS) play an important role in giving workers the right to know.

### *The right to refuse work*

Workers have the right to refuse work that they believe is dangerous to either their own health and safety or that of another worker. The Act describes the exact process for refusing dangerous work and the responsibilities of the employer in responding to such a refusal.



## ***The right to stop work***

In certain circumstances, members of a joint health and safety committee who are “certified” have the right to stop work that is dangerous to any worker. The Act sets out these circumstances and how the right to stop work can be exercised.

## **Responsibilities of Managers/Supervisors**

Within the University of Toronto, the term “Supervisor” means:

- i) employees with supervisory responsibility over other employees,
- ii) Academic supervisors with supervisory responsibility over graduate students, undergraduate students, Post-Doctoral Fellows, Visitors to the University, summer students, volunteer students and any other person supervised.

**Attention Managers/Supervisors: You must be aware of the legislated training needs for yourself and your staff. Please ensure that the training is received.**

Supervisors shall ensure that those activities over which they have control are conducted in a safe manner and in accordance with the University’s policies, programs and applicable legislation.

### ***Duties of supervisor (R.S.O. 1990, c. 0.1, s. 27)***

27. (1) A supervisor shall ensure that a worker,
- (a) works in the manner and with the protective devices, measures and procedures required by this Act and the regulations; and
  - (b) uses or wears the equipment, protective devices or clothing that the worker’s employer requires to be used or worn.

Additional duties of supervisor

- (2) Without limiting the duty imposed by subsection (1), a supervisor shall:
- (c) advise a worker of the existence of any potential or actual danger to the health or safety of the worker of which the supervisor is aware;
  - (d) where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for protection of the worker; and
  - (e) take every precaution reasonable in the circumstances for the protection of a worker

## **Duties of Employers**

The Act imposed duties on those who have any degree of control over the workplace, the materials and equipment in the workplace and the direction of the work force.

There is a general duty on employers to take all reasonable precautions to protect the health and safety of workers. In addition, the Act and regulations set out many specific responsibilities of the employer. For example, there are duties that specifically relate to toxic substances, hazardous machinery, worker education and personal protective equipment.

References:

A Guide to the Occupational Health and Safety Act ISBN 0-7794-3-48-4

OH&S Codes and Standards Handbook