

Title:	<i>SAFE WORK PRACTICE #010:</i> GUIDELINES FOR SAFE WORK PRACTICES IN TEACHING LABORATORIES
SWP document #:	FSSC-SSWP-010-v1.1
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This Safe Work Practice is approved and maintained by the Faculty of Science Safety Committee. Please contact Leanne Lucas, Safety Advisor–Science Activities, with any questions or concerns (leanne.lucas@smu.ca)

1. PURPOSE

This Safe Work Practice (SWP) provides advice to ensure and document that Instructors, Departmental Technicians, Teaching Assistants, Students, Staff, Visitors, and others are not exposed to unacceptable levels of hazardous chemicals, biologicals, or radiation while conducting teaching activities.

2. SCOPE

- 2.1** Education to provide awareness of this SWP is the responsibility of the Safety Advisor, Science Activities. Enforcement of these instructions is the responsibility of the Department Chair and the Dean of Science.
- 2.2** It is the responsibility of the Laboratory Instructor, Departmental Technician, Teaching Assistants and/or Staff to exercise these instructions for their respective duties.
- 2.3** These instructions apply to all Laboratory Instructor, Departmental Technician, Teaching Assistants, Students, Staff, Faculty, and Visitors performing or participating in teaching activities in laboratories within the Faculty of Science.
- 2.4** This guidance outlines a system for periodic review and archiving of teaching laboratory experiments to prevent exposures from activities in teaching labs.

3. HEALTH, SAFETY AND ENVIRONMENT

- 3.1** Working safely in laboratories is everyone's responsibility. Each person is responsible for their own health and safety and the health and safety of those around them. All Students will follow the directions of Teaching Assistants, Departmental Technicians, and Laboratory Instructors. Failure to follow health and safety related directions may result in loss of

privilege to participate in laboratory activities as outlined in the **FSSC-SSWP-018** Science Safety Policy. Students who have not completed required pre-lab activities, or have missed critical information at the start of the laboratory due to late arrival, may be asked to leave the laboratory if failure to undertake the pre-lab activities or missing start of lab instructions presents a safety risk to their work within the laboratory. Such an occurrence may result in academic penalty in the form of lost marks for the missed activities. For more details on working safely in laboratories, please see **FSSC-SSWP-015** Guidelines for Safe Work Practices in Laboratories.

- 3.2** If an experiment is to continue unattended OR outside of regular working hours (i.e. evening, overnight, weekends and holidays) the Laboratory Instructor shall complete the **Experiment in Progress Form**. The form must be prominently displayed on the lab door outside of the teaching area. A duplicate copy of the form may also be posted on or near the equipment in use (e.g. growth chamber door, fume hood, glove box). The form includes contact information for the Laboratory Instructor and Supervisor, as they will be contacted if there is an issue with the experiment. If there is a concern about posting personal contact information publicly, a Teams phone number may be used and set to forward to a personal number. Students, staff, or faculty working alone during evenings or weekends should advise Security when they arrive and leave campus. Security will check on those working alone during their rounds, as part of the Lone Worker/Student program.
- 3.3** Substances or processes that use solvents, volatiles, or toxic substances, etc. or which produce volatiles, particulates, smoke, etc., require engineering controls as per the Safety Data Sheet (SDS) or hazard/ risk assessment. These substances or processes may only be used in laboratories equipped with fume hoods, fume extractors, glove boxes, or other necessary equipment as specified in the SDS or hazard/ risk assessment. Additional controls (elimination, substitution, administrative, PPE) for implementation may be identified during the hazard/ risk assessment. Chemical containers shall be covered or closed when not in use.
- 3.4** Laboratory Instructors are to complete a **Hazard and Control Assessment** prior to commencing work that is new or significantly different than previously performed (e.g. implementing a new procedure, using new or different equipment, working in a new location, etc.). On undertaking the work after completion of the hazard and control assessment, closely monitor the new work or procedure to ensure that exposure controls are operating as expected. Adjustments to the work procedure are to be made as needed. For more information on completing hazard assessments, please see **Chapter 3 of the Saint Mary's University OHS Program Manual**.
- 3.5** All substances used in an experiment must have their SDSs and any protocols or laboratory manual present in the laboratory. These documents must be reviewed by the Laboratory Instructor prior to use.
- 3.6** Exposure controls and/or monitoring devices recommended by the SDS or the manufacturer shall be present and used as required.
- 3.7** All substances, whether supplier manufactured or in-house synthesized, must be labeled with a WHMIS supplier or workplace label, as appropriate. The label shall specify the product name or contents, owner, safe handling procedures, and reference to the SDS, as applicable.
- 3.8** Laboratory wastes shall be collected and disposed of via **Work Instruction #13**.

3.9 Anyone undertaking teaching or learning activities in teaching laboratories (e.g. Faculty, Staff, Students) will participate in WHMIS education and be provided any other relevant training, information, or instruction as appropriate.

3.10 Any use of teaching laboratories for non-teaching activities (e. g. research, outreach, service) requires approval by the Department Chair and the Dean of Science.

3.11 Periodic Review of Teaching Laboratory Experiments:

3.11.1 Lab manuals should be reviewed and updated as required prior to use for any course.

3.11.2 Laboratory manuals or experimental procedures will clearly identify any and all potential sources of chemical, biological or radiation exposures. Lab manuals will clearly identify the names(s) of substances to be used in each experiment and any safety precautions that are required.

3.11.3 Manuals will clearly indicate the following: Course name, course number, revision date, room number(s), course instructor(s). The Laboratory Instructor will ensure rooms are appropriate for the type of laboratory work to be conducted.

3.11.4 An electronic copy of the laboratory manual will be emailed for review by the Safety Advisor, Science Activities no later than three weeks before the first day of classes.

3.11.5 The Safety Advisor, Science Activities will maintain an archive of manuals and associated documents.

3.11.6 The review process will be completed for each laboratory course at least every three years.

4. DEFINITIONS

4.1 Harmful substances may be classified as: chemical, biological, and radiation (radiation generating substances or equipment).

4.2 The route of entry shall reflect those definitions provided by WHMIS https://www.ccohs.ca/oshanswers/chemicals/how_chem.html. Chemicals must first contact or enter the body to harm a person's health. There are four major routes in which a chemical may enter the body:

4.2.1 Inhalation (breathing)

4.2.2 Skin (or eye) contact

4.2.3 Swallowing (ingestion or eating)

4.2.4 Injection (skin penetration)

Use the hierarchy of controls to eliminate or reduce hazards.

4.3 A teaching laboratory shall be a room designated for completing course laboratories as detailed in the Academic Calendar.

4.4 For activities described in this document, the Departmental Technician(s) are recognized as individuals normally responsible for the day-to-day maintenance and preparation of a teaching laboratory and/or course laboratory.

4.5 The Laboratory Instructor is the individual responsible for teaching the laboratory activity.

5. SAFETY EQUIPMENT AND SUPPLIES

5.1 Exposure controls and/or monitoring devices recommended by the SDS, manufacturer, or applicable regulatory body, shall be present and used as required. Where there is lack of recommended controls, an effort shall be made to identify “best practices”.

5.2 Verify that safety equipment is in good working order before beginning laboratory work. Any Student, Staff, or Faculty member who identifies missing or faulty safety control equipment (e.g. fume hoods, biosafety cabinet, glove box, eye wash and emergency shower stations, fire extinguishers, first aid kit, etc.) within laboratories shall notify the Laboratory Instructor immediately, who shall in turn notify the Safety Advisor, Science Activities. Persons who identify faulty or inadequate safety measures can file an incident report <https://www.smu.ca/about/ohs-reporting-incidents-and-injuries.html> or <https://www.smu.ca/faculty-of-science/science-reporting-hazards-incidents-injuries.html>. The incident report form may also be used to report injuries, incidents, and near misses.

5.3 The Laboratory Instructor shall take every reasonable measure to report and correct deficiencies noted in section 5.2 in a timely manner.

5.4 The Laboratory Instructor shall ensure proper housekeeping based on the known teaching activities. The Laboratory Instructor shall ensure that adequate personal protective equipment (PPE) and SDSs are available, and that substances are properly labeled.

5.5 It is the responsibility of the Laboratory Instructor to ensure that the Departmental Technician(s) are provided with the most recent working copy of the lab manual for preparation purposes.

5.6 It is the responsibility of the Laboratory Instructors and Departmental Technicians to read and understand the lab manual, ask clarification questions if needed, and to ensure activities are within their means of competence.

5.7 All PPE required under this policy or by the Laboratory Instructor shall be used. The Safety Advisor, Science Activities may be consulted in determining appropriate PPE requirements. Students will use all PPE required as instructed by the Laboratory Instructor, Departmental Technician, or Teaching Assistant.

6. REFERENCES

- 6.1** Science Safety Documents:
Experiment in Progress Form
Hazard and Control Assessment
Work Instruction 13 Handling and Disposal of Laboratory Generated Wastes
SWP 15: Guidelines for Safe Work Practices in Laboratories

SWP 18: Science Safety Policy

<https://www.smu.ca/faculty-of-science/science-safety-documents.html>

6.2 SMU Lone Worker/Student Program

<https://news.smu.ca/news/2024/1/25/keeping-campus-safe-security-at-smu>

<https://www.smu.ca/webfiles/SMUEmergencyGuideMay2016V7.pdf>

6.3 Saint Mary's University OHS Program Manual Chapter 3 – Hazard Identification, Risk Assessment, Risk Control <https://www.smu.ca/about/ohs-programs.html>

6.4 CCOHS Chemicals and Materials: How can chemicals enter my body?

https://www.ccohs.ca/oshanswers/chemicals/how_chem.html

6.5 Injury, incident, and near miss reporting at Saint Mary's University.

<https://www.smu.ca/about/ohs-reporting-incidents-and-injuries.html>

<https://www.smu.ca/faculty-of-science/science-reporting-hazards-incidents-injuries.html>

7. REVISION HISTORY

Date	Version	Summary of changes
2024-10-11	v1.0	Document conversion to SWP from Work Instruction 10 (Initially created 08/29/2004, approved 01/27/2006, last revised 03/13/2014 V22). Updated to define Purpose and Responsibilities. Added information on when to use the Experiment in Progress Form and Hazard and Control Assessment. Clarified procedure for periodic review of lab manuals for teaching laboratory experiments. Added References.
2024-12-13	v1.1	Document revision to include reference to new FSSC-SSWP-015 Guidelines for Safe Work Practices in Laboratories and FSSC-SSWP-018 Science Safety Policy. Updated to include link to Science Safety Website for Electronic Incident Report Form. Updated to clarify that students must follow safety directions provided by Instructors, and consequences of failing to follow those instructions.