HOBART AND WILLIAM SMITH COLLEGES

CHEMICAL HYGIENE PLAN

Hobart William and Smith College

Copies of the Chemical Hygiene Programs:

1. Human Resources Office
2. Office of the President (Provost)
3. Campus Safety Office
4. Electronic Version (HWS HR website)

November 2024

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1.0 INTRODUCTION

The purpose of the Hobart and William Smith Colleges (HWS) Chemical Hygiene Plan (CHP) is to establish and implement policies, procedures and work practices intended to comply with the following OSHA and Code of Federal Regulations (CFR). All campus laboratories using hazardous chemicals are required to comply with 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories and the requirements outlined in this document. This standard requires that the college develop a written CHP capable of protecting employees from the health hazards associated with hazardous chemicals in the laboratory.

This CHP is also written using Prudent Practices in the Laboratories as well as the OSHA document- Laboratory Safety Guidance referenced in the OSHA regulations. Every effort is made to ensure risks, including those from hazardous Chemicals are mitigated to an acceptable level through appropriate engineering controls, specific procedures, and policies institute by the college. The responsibility for ensuring a safe workplace must truly be a shared responsibility between Faculty professor/ instructors, staff, students and campus environmental, health and safety committee.

The requirements imposed by the OSHA Laboratory Standards include:

A. Protecting employees from physical and health hazards associated with hazardous chemicals in laboratories.

B. Keeping chemical exposures below specified limits.

C. Training and informing workers of the hazards posed by the chemicals used in the laboratory.

D. Providing medical consultations and exams, as necessary.

E. Preparing and maintaining a written safety plan (the Chemical Hygiene Plan).

F. Designating personnel to manage chemical safety.

G. Specific storage requirements for hazardous chemicals.

H. Limitations on the quantities of hazardous chemicals.

I. Handling, storage, and disposal requirements for hazardous waste.

J. Restrictions on the shipping and transportation of hazardous chemicals.

1.1 Definitions

Chemical Hygiene Plan- A written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that (a) can protect employees from the hazards presented by hazardous chemicals used in the laboratory and (b) meets the requirements of OHSA's Hazardous Chemicals in Laboratory Standard (29 CFR 1910.1450).

Chemical Hygiene Officer-

A. An employee who is designated by the employer, and who is Qualified by training or experience, to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan, or,

B. An employee who oversees safety on campus, has a basic knowledge of chemical hygiene procedures, and is supported by a consultant who meets the criteria set forth in A above.

Chemical High Risk Procedures- Lab procedures that pose significant risk of serious injury or major property damage if a malfunction were to occur (such as a utility outage, runaway reaction, container failure, or chemical spill/release) and /or which require any of the following:

- Engineering controls more specialized than good room ventilation, chemical fume hoods, biological safety cabinets and / or local exhaust such as snorkel or canopy hoods.
- Personal protective equipment in addition to gloves, lab coats, eye/face protection and / or chemical or thermal protective equipment aprons or sleeves.
- Chemical-specific first aid treatments or antidotes.

Combustible Liquid A liquid having a closed cup flash point at or above 100°F (38°C). Combustible liquids shall be subdivided as follows:

- Class II: Liquids having a closed cup flash point at or above 100°F (38°C) and below140°F (60°C).
- Class IIIA: Liquids having a closed cup flash point at or above 140°F (60°C) and below200°F (93°C).
- Class IIIB: Liquids having a closed cup flash point at or above 200°F (93°C). The category of combustible liquids does not include compressed gases or cryogenic fluids.

Designated Area- An area which may be used for work "with select" carcinogens, reproductive toxins or substances which had a high degree of acute toxicity. A designated area may be the entire laboratory, an area of a laboratory or a device such as a lab hood.

Flash Point-The minimum temperature in degrees Fahrenheit at which a liquid will give off sufficient vapors to form an ignitable mixture with air near the surface or in the container but will not sustain combustion. The flash point of a liquid shall be determined by appropriate test procedure and apparatus as specified in ASTM D 56, ASTM D 93 or ASTM D 3278.

Hazardous Chemical- Any chemical which is classified as a physical hazard or health hazard, a simple asphyxiant, combustible dust, pyrophoric gas or hazard not otherwise classified.

Hazardous Waste: is a waste that is dangerous or capable of having a harmful effect on human health or the environment. A discarded material will be deemed a hazardous waste if it exhibits any of the four hazardous waste characteristics identified below, or if it is contained on one of the four separate types of "listed waste" identified below.

Characteristic Hazardous Waste (All D-Codes):

- **Ignitability:** liquids with a flash point of 140°F or below, oxidizers, or spontaneously combustible materials (D-Codes)
- **Corrosivity:** pH≤2 or ≥12.5, (D-Codes)
- **Reactivity:** materials that readily explode or undergo violent reactions (D-Codes)
- **Toxicity:** wastes likely to leach dangerous concentrations of toxic chemicals into groundwater (D-Codes)

Health Hazard- Includes that area classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); Skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenetic; reproductive toxicity; specific organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for

determining whether a chemical is classified as a health hazard are detailed in Appendix A of the OHSA Hazard Communication Standard (HCS).

Highly Toxic- A material which produces a lethal dose or lethal concentration that falls within any of the following categories:

- A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of bodyweight when administered orally to albino rats weighing between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.
- A chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

Mixtures of these materials with ordinary materials, such as water, might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation that is required for the precise categorization of this type of material shall be performed by experienced, technically competent persons.

Medical Consultation- a consultation which takes place between an employee and a licensed health care provider for the purpose of determining what medical examinations or procedures, if any, are appropriate in cases where a significant exposure to a hazardous chemical may have taken place.

Physical Hazards- A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids or solids); oxidizer (liquid, solid, or gas); self-reactive; pyrophoric (liquid, or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas; or combustible dust. The criteria for determining whether a chemical is classified as a physical hazard are in Appendix B of the Hazard Communication Standard.

Safety Data Sheets (SDS)- Written or printed materials concerning a hazardous chemical that is prepared in accordance with the OSHA Hazard Communication Standard.

2.0 RESPONSIBILITIES

2.1 Chemical Hygiene/Safety Committee

The Chemical Hygiene Committee will be combined with the Safety committee. This committee will focus on:

- Annual review of the CHP.
- Provide technical guidance in the development and implementation of the CHP for all affected departments.
- Ensure that staff are knowledgeable on emergency plans, including fires, equipment failure, chemical exposures, and chemical spills.
- Creation, review and approval of SOPs ensuring that PPE, engineering controls and administrative controls described within the SOPs provide adequate protection.
- Conduct regular chemical hygiene inspections, housekeeping inspections, including inspection of emergency equipment.
- Correct any unsafe conditions identified within the laboratory through either self-inspections or inspections by Staff, Partners or other campus employees.
- Review of written guidelines and training programs, as necessary.
- Maintain up-to-date chemical inventories (minimum requirements are discussed in Section 4.5)
- Provide access to manufacturer' Safety Data Sheets (SDSs), the campus and laboratory CHPs and other safety-related information for the campus.
- Maintain compliance with the federal, state and local regulations related to the use of hazardous chemicals in each laboratory (as outlined in this document).
- Discussion of laboratory safety issues and incidents.
- Development of policies and practices regarding laboratory safety issues.

The Committee will be comprised of the leadership across several areas of the college to support any actions that may need to be addressed in key areas.

The following are those currently active on the Committee:

Name	**Campus address**	**Department**	**Contact number**
Dr. Nick Metz	Coxe Hall	Provost	315-781-3819
Tabitha Spinner	Gulick Hall	HR	315-781-3375
Martin Corbett	B&G Building	Campus Safety	315-781-3000
Prof. Christine DeDenus	Eaton Hall	Chemistry	315-781-3612
Glenn Brubaker	B&G Building	Sodexo maintenance	315-781-3105
Partners Safety Rep	N/A	Partners	315-870-5082

Laboratory Technicians and other subject matter experts will be ad hoc members of the committee and included in meetings as necessary.

2.2 Chemical Hygiene Officer (CHO)

The Chemical Hygiene Officer will be responsible for:

- Review and update the Campus CHP
- Maintain and update the Hobart and William Smith's CHP and other guidance documents.
- Facilitate the college understanding of, and compliance with required chemical health and safety regulations.
- Provide technical guidance to the Safety committee, Faculty professor/instructors, staff and students for implementation of the CHP.
- Provide guidance for safety handling, storage, and disposal of chemicals used on campus.
- Facilitate efforts to implement processes that are environmentally friendly.
- Ensuring all students and employees actively participate in the program.
- Certain aspects of the program may be delegated to others as indicated throughout the CHP.

The CHO for HWS is:

1. Martin Corbett, Chemical Hygiene Officer
   Associate Vice President for Campus Safety
   HWS Campus Safety & Maintenance Building
   Geneva, NY 14456
   315-781-3656 (work), 315-521-7627 (cell)

2. Chemical Hygiene and Safety Consultant,
   Partners Environmental Representative
   krozum@partnersenv.com
   800-763-1363

3. Becca Barile
   Vice-President for Campus Life
   Hobart and William Smith Colleges
   Geneva, NY 14456
   barile@hws.edu
   (315) 781-3900

2.3 Faculty Professor/instructors

Faculty professor/instructors of individual departments will:

- Follow HWS practices, policies, and SOPs and as outlined in the HWS CHPs.
- Attend all safety training as required by the Safety Committee.
- Perform only procedures and operate only equipment that they have been authorized to use and trained to use safely.

- Check relevant information on the chemical reactivity and physical and toxicological properties of hazardous materials (such as Safety Data Sheets, Prudent Practices in the Laboratory) prior to use of the chemical substance.
- Have knowledge of emergency procedures prior to working with hazardous chemicals.
- Incorporate safety in the planning of all experiments and procedures.
- Use the personal protective equipment and hazard control devices provided for their job.
- Routinely check that engineering controls are functioning.
- Ensure that equipment is safe and functional by inspection and preventative maintenance, including glassware, electrical wiring, mechanical systems, tubing and fittings, and high energy sources.
- Understand the inherent risk of any laboratory procedure.
- Report any unsafe condition immediately to the PI or other safety personnel.
- Keep work areas clean and orderly.
- Avoid behavior which could lead to injury.
- Dispose of hazardous waste according to HWS procedures.
- Report incidents involving chemical spills, exposures, work-related injuries, and illness or unsafe conditions to Safety Committee.
- Consult with the Safety Committee or with CHO on any safety concerns or questions.

3.0 HWS CHEMICAL HYGIENE PLAN

3.1 Chemical Hygiene Plan

According to the OSHA laboratory Standard, the CHP must include:

- Standard Operating procedures (SOPs) relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals.
- Criteria to determine and implement specific control measures to reduce employee exposure to hazardous chemicals, such as engineering controls and PPE.
- A requirement that an ongoing program be developed to ensure that fume hoods and other engineering controls are functioning properly, and specific measures are taken to ensure proper and adequate performance of such equipment.
- Information and training requirements to ensure employees are apprised of the hazards of chemicals present in their work area.
- Circumstances under which a particular laboratory function will require "prior approval" before implementation.
- Provisions for medical consultation and medical exams for all employees who work with hazardous chemicals.
- Designation of a Chemical Hygiene officer (CHO).
- Provision for additional employee protection for work with select carcinogens, reproductive toxins, and substances that have a high degree of acute toxicity.
- Exposure monitoring, medical examinations when needed and record keeping requirements of all exposures reported.

3.2 CHP Availability

The CHP must be made available to all laboratory personnel and will be located available electronically on the HWS HR page.

In addition to the CHP, all laboratory personnel must be familiar with and adhere to all the laboratory safety guidelines and standard operating procedures (SOPs) as developed by the responsible laboratory Faculty professor/instructors. A listing of these have been made available as an appendix to this CHP. The information should include the following:

- The signs and symptoms associated with exposure to the hazardous chemicals used in the laboratory.
- The location and availability of reference material, including access to Safety Data Sheets (SDS) on hazards, safe handling, storage, and disposal.
- Student Training manuals or guidelines as developed by each Laboratory Departments.

3.3 CHP Review

The CHP will be reviewed and updated annually by members of the safety committee. Any revisions made will be placed in the revision section of the plan in Appendix 10.8.

4.0 LABORATORY POLICIES

4.1 Laboratory Use Policy

The HWS Safety Committee has the ability to develop, review and approve campus policies on issues related to the purchase, use storage and disposal of chemicals to be used in a HWS laboratory. The faculty professor/instructors of the laboratory have the right to set policies for laboratories under their control as long as these are at a minimum, compliant with regulations and HWS policies. Laboratory specific policies should be reviewed and approved annually by the department and the safety committee.

The following general policies apply for all laboratory operations involving a hazardous chemical:

It is HWS policy that appropriate PPE must be worn at all times. At a minimum, closed toed shoes and safety glasses must be worn whenever hazardous chemicals are present in the laboratory.

It is HWS policy that no eating and drinking is allowed in laboratories where hazardous chemicals are present.

It is HWS policy that unnecessary exposure to hazardous chemicals via any route will be avoided through the proper use of engineering controls (ventilation hoods), personal protective equipment (gloves, safety glasses, clothing) and administrative controls (SOPs).

It is HWS Policy that the use of audio headphones (over-ear and in-ear) is prohibited when performing chemical procedures and highly hazardous operations.

It is HWS policy that good housekeeping practices be upheld in all laboratories and that all passageways, exits, utility controls, and emergency equipment remain accessible at all times.

It is HWS policy that any procedure or operation identified by laboratory students, staff or CHO as imminently dangerous (i.e., the operation puts individuals at immediate serious risk of death or serious physical harm) must be immediately stopped until corrective action is taken.

4.2 Engineering Control

As stated above, a primary goal of chemical safety efforts is to minimize the potential for exposures. A direct way of reducing exposure can be accomplished by isolating the source or removing contaminants through various ventilation methods. Engineering controls should be implemented within the laboratory whenever practical to minimize exposure to hazardous chemicals.

By far the most commonly used engineering control used in laboratories is the chemical fume hood. Fume hoods are especially effective when handling gases, vapors, or powders. Each Laboratory Professor/technician rely heavily on these, often while performing the most hazardous tasks. The written SOP provides information on the proper us of fume hoods.

Due to the importance placed on fume hoods some key requirements are emphasized below:

Faculty professor/instructors must understand how to properly use chemical fume hoods. Faculty professor/instructors need to ensure that facility and students have received the proper training, and document that training for laboratory safety records.

Details of chemical fume hood use, maintenance, and annual testing can be obtained through B&G Sodexo Manager.

Fume hood inspection, testing, and maintenance are performed annually by HWS B&G. After inspection, a certification sticker is affixed to each fume hood, which lists the most recent certification date. Fume hoods with a certification date greater than one year must be put out of service until recertification is complete (if fume hood inspection date is more than one year old, contact B&S Manager for recertification at 263-3333).

Fume hoods must be tested prior to any hazardous operations. In many instances, fume hoods are alarmed and provide an audible warning when the airflow is outside normal parameters. If the fume hoods are notworking properly in the laboratory, chemicals in the hood should be secured and the work stopped. Contact FP&M PPCS at 263-3333 if any issues with the fume hoods have been detected.

Working with perchloric acid poses a unique risk due to the possible buildup of potentially explosive perchlorate residues on surfaces and in duct work. For this reason, special fume hoods with a water wash down system have been designed for use with perchloric acid. A specially designated perchloric acid fume hood must be used if any of the following is applicable:

- Concentrated perchloric acid (60% or greater) is used.
- Perchloric acid (at any concentration) is used at elevated temperatures.
- Perchloric acid is used under conditions where it may become concentrated (such as with strong dehydrating agents). The wash down system should be used after each operation.

Fume hood alarms should never be disarmed. Other ventilation methods, including general room ventilation, point-source (such as snorkels), and gas cabinets also provide protection to workers.

Due to the reliance placed on these engineering controls, laboratory personnel need to incorporate regular inspections and/or testing of the controls into their standard operating procedures to ensure proper operation. This may be as simple as testing that air is flowing, or gauges are working. Some controls are more complicated and are regularly maintained or calibrated by outside vendors through B&G.

4.3 Administrative Controls

Administrative controls consist of policies and procedures developed to improve the safety of laboratory operations. Typical examples include night-time work hour limitations and experimental scale-up restrictions. Since administrative controls require lab personnel to follow appropriate procedures these are generally not as reliable as engineering controls.

While the HWS Chemical Safety Committee sets broad campus policy, as outlined in this document, it does not set specific administrative controls for use of hazardous chemicals. These controls must be set by Individual Departments. If not already documented in each department, administrative controls should be called out in the policy section of the laboratory-specific CHP

and available online at the college's HR page. All laboratory staff needs to be informed of these controls.

4.4 Personal Protective Equipment (PPE):

Engineering and administrative controls are the primary lines of defense within the hierarchy of hazard minimization. When these methods are not adequate then exposure to hazardous chemicals can normally be minimized, if not eliminated, through proper selection of PPE. Typical examples of PPE include safety goggles, safety glasses, lab coat, gloves, and respirators. The CHO, using a PPE assessment, has the primary responsibility to determine the appropriate PPE and ensure that the PPE is made available.

Details are important. If respirators are required, specific types of respirators must be indicated. The same is true for gloves – chemical compatibility plays a major role in determining the type of glove (e.g., latex, nitrile, vinyl).

Additional information can be found on Safety Data Sheets, which often provide information on the proper choice. The CHO or the HWS Safety Committee can provide assistance on proper choice for PPE.

While close-toed shoes and safety glasses are the minimum PPE requirements for all laboratories containing hazardous chemicals, the PPE required for specific procedures and tasks should be reflected in the Laboratory SOP and training. The SOPs are found at available on the EH&S Chemical Safety Office website provide a means to document the requirements.

The safety glasses provide frontal protection only from such hazards as flying particles encountered in woodworking, machine metalwork, general warehouse, stock clerk, dock work, brush cleaning, etc. Side shields, which are necessary for side protection from flying particles, are available with the glasses. These do not provide adequate eye and face protection from chemical splashes or fumes. The use of face shield should be used if potential splashes from chemical pouring or transferring from one container to another is required.

4.5 Chemical Inventory

HWS is subject to numerous regulations above and beyond the OSHA Laboratory standard and Hazard Communication.

The Emergency Planning and Community Right-to Know Act (EPCRA)- is a federal statute that requires all entities that store, use or process hazardous chemicals to report this information to the State Emergency Response Commission and Local Emergency Planning Committees and in some cases the local fire department. EPCRA has four major provisions which are largely independent of each other and involve different chemicals list with different threshold Reporting. The sections that apply to HWS are listed below:

The chemical inventory for all departments, with links to the corresponding SDS, is located in the CampusOptics chemical inventory software. This will be maintained annually and updated as new chemicals are approved for use.

4.6 General Inspections

It is the responsibility of the faculty professor/instructors whose students are working in the lab to assure the lab has passed inspection. Preferably, the inspection should be done monthly. Inspection is done using a form posted in every laboratory or electronically using the Campus Optics inspection. (If no form is posted, the professor should obtain a copy of the form from this CHP -Appendix 10.6.) If the laboratory does not pass inspection in every category, it may not be used until the problem is corrected.

1. Fire extinguishers
    - Visually inspected monthly for broken seals, damage, and low gauge pressure (depending on type of extinguisher).
    - Proper mounting of the extinguisher and its ready accessibility should also be checked.
    - The monthly inspections and annual maintenance checks of fire extinguishers as per 29 CFR 1910.157 are to be done by Campus Safety staff. Inspections will be noted on each extinguisher's inspection tag and in the CampusOptics software.
    - Campus Safety contracts the annual inspection and cylinder tests of fire extinguishers to Global Fire Protection, Rochester, NY.
    - Fire drills are to be performed at least three times each year.
    - Fire inspections of the buildings are performed annually by the New York State Office of Fire Prevention and Control.
2. Safety Showers
    - The Buildings and Grounds Department is responsible for maintaining and testing safety showers and emergency eyewash stations on the HWS campus monthly. Faculty professor/instructors must ensure that the stations are readily accessible, are never be blocked by furniture or equipment and are flushed on a weekly basis.
    - Flush systems and check valves for proper operation.
    - Check entire unit for leaks.
    - Verify proper flow rates and adjustment of shower heads.
    - ANSI flow rates are minimum 30 gallons per minute at 30 PSI.
3. Eye Washes
    - Flush systems and check valves for proper operation.
    - Check entire unit for leaks.
    - Verify proper flow rates and adjustment of spray heads.
    - ANSI flow rates are minimum 0.4 gallons per minute.
    - Make sure the units are properly stocked with fresh chemicals.
    - If expiration date has expired, replace bottles. (if portable)
    - Check bottles for possible contamination due to physical damage. (if portable)

- Check mounting backboard for damage.

Independent monthly inspections will be completed by the professional from the outside consulting group based upon an annual schedule that includes each area on campus. The outcome of these inspections will be forwarded to the Safety committee to be reviewed and addressed at the monthly meetings.

4.7 General Student Training

The faculty professor/instructors shall be considered the "competent persons" and will provide students and employees with information and training to ensure that they are apprised of the hazards of chemicals present in their laboratory work as mandated in 29 CFR 1910.1450 (f) and other OSHA requirements that may exist. The training will be based upon the hazards identified in each laboratory assessment completed annually.

Such information shall be provided at the time of a student's introductory departmental course, at the beginning of any course where hazardous materials may be used, or at the time of an employee's hiring.

The frequency of refresher instruction and training shall be determined by the faculty professor/instructors. For students, it is recommended that this training will occur with each new course the student takes. Review, as well as discussion of hazards specific to the new course, will be covered. Additional training will be provided immediately prior to an experiment when deemed necessary by the faculty professor/instructors.

Faculty professor/instructors must also provide safety training and information to their research students. Instructors may utilize the training forms found in Appendix A. Once completed these forms must be turned into the HWS safety committee and kept for up to five years.

Students shall be informed of the following components:

- The contents of this CHP and its Appendices.
- The location and availability of the employer's CHP and how to use it.
- The PEL for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard.
- Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory.
- The location and availability of known reference material on the hazards, safe handling, storage, and disposal of hazardous chemicals found in the laboratory including, but not limited to, Safety Data Sheets (SDS) received from the chemical supplier.
- Methods and observations that may be used to detect the presence or release of a hazardous chemical (such as visual appearance or odor of hazardous chemicals when being released, etc.).
- The physical and health hazards of chemicals in the work area.
- The measures students can take to protect themselves from these hazards, including specific procedures the faculty professor/instructors have implemented to protect students from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

4.8 Situations Requiring Approval

4.8.1 Working Alone

Generally, it is prudent to avoid working in a laboratory building alone. Under normal working conditions, arrangements should be made between individuals working in separate laboratories to crosscheck periodically. Experiments known to be hazardous should not be undertaken by a worker who is alone in a laboratory.

Under unusual conditions, special rules may be necessary. The professor/instructor of the laboratory has the responsibility for determining whether the work requires special safety precautions. In any case, working alone is not permitted in any lab work associated with a chemistry course.

Independent Study and research students may work in a lab alone during normal business hours (8:00 A.M. - 5:00 P.M., Monday through Friday) but must inform the advisor of their schedule. Outside of this time, they must have a second person according to the recommendations of the professor. Work on particularly hazardous procedures must be done Monday through Friday, 8:00 A.M. - 5:00 P. M. and the advisor must be alerted and available to help.

Procedures deemed non-hazardous by the professor may be done by research students working alone at any time.

4.8.2 Unattended Operations

Frequently, laboratory operations are carried out continuously or overnight. It is essential to plan for interruptions in utility services such as electricity, water, and inert gas. Operations should be designed to be safe, and plans should be made to avoid hazards in case of failure. Wherever possible, arrangements for routine inspection of the operation should be made and, in all cases, the laboratory lights should be left on, and an appropriate sign should be posted on the door.

5.0 CHEMCIALS

5.1 Material Ordering/ Procurement Process

- Faculty professor/instructors are authorized to order chemicals for the department.
- Before any ordering takes place, individuals should examine the chemical inventory available on CampusOptics to determine if the chemical is already available.
- If they wish to acquire new and unfamiliar hazardous chemicals, they shall complete the chemical procurement form before placing the order.
- An appropriate waste disposal method must be identified before introducing a new chemical into HWS.
- No container of any chemical will be accepted without an identifying label.
- It is the responsibility of each department lab technician to maintain the chemical inventory for their department and ensure that each chemical is linked to the appropriate SDS in the CampusOptics software system.

5.2 Storage/Stockroom

- The faculty professor/instructors or Lab Techs will be responsible for the stockrooms.
- Chemicals are stored in the stockroom, segregated by class.
- The stockroom must be locked at all times.
- Individuals accessing the stockroom will follow all the proper material handling techniques and use proper protective equipment.
- Storage is based on compatibility, and storage requirements.
- Food/beverage is not allowed in the stockroom or in any lab.
- All refrigerators used to store chemicals will have warning signs.
- Flammable chemicals will be stored in vented cabinets.
- Unknown substances shall be assumed toxic and must be stored accordingly.

5.3 Distribution/transportation

- When transporting chemicals outside the laboratory, individuals must avoid dropping or spilling chemicals.
- Appropriate carrying mechanisms such as a secondary container shall be used whenever chemicals are transported.

6.0 LABORATORY EQUIPMENT

6.1 Fume Hoods

6.1.1 Fume Hood Usage

The Chemical Hygiene Plan requires that fume hoods and other protective equipment be functioning properly and that specific measures shall be taken to ensure proper and adequate performance of such equipment as per 29 CFR 1910.1450 (e) (3) (iii). The Buildings and Grounds Department is ultimately responsible for maintenance and repair of fume hoods. All fume hoods have been inventoried, placed int eh maintenance system and are inspected annually.

The operating procedures and testing are as follows:

- Fume hoods must be turned on before use.
- Students are required to wear lab coats when the need to do so has been determined by the professor of the course.
- All students, professors, visitors, and employees are required to wear eye protection when required by any professor.
- All hazardous materials must be handled inside fume hoods to assure the PEL is not exceeded.
- The person responsible for assessing the need for protective equipment is the professor of the course.
- The professor of the course is also responsible for routine inspection of eyewash stations in his or her lab(s).
- Training on the availability and proper use of the protective equipment is to be conducted by the professor of the course.
- Familiarize yourself with the physical and chemical properties of the materials you plan to work with by consulting the Safety Data Sheets and other available references.
- Do not assume that a fume hood is operating properly. Always review the results of the most recent fume hood survey by consulting the hood sticker or the survey report.
- Check the continuous flow monitoring device on the hood face (e.g., static pressure gauge), and compare the current reading with the number recorded on the hood sticker or the survey report to confirm that the hood operation is consistent with the results of the latest survey. If there are questions about proper performance, resolve them before using the hood.
- Cross drafts should be avoided because air currents may draw contaminants from the hood. Cross drafts can be created by wind from open windows, room fans, and doors, or by people walking too near the hood. Check supply air diffusers, open windows, or doors, and avoid rapid movements in front of hood. Avoid cross drafts in front of the hood from supply air ducts or pedestrian traffic in the vicinity of the hood. Rapid movements by the user also tend to disrupt the airflow into the hood and reduce the containment provided.

- The hood fan should be on high speed while in use.
- Make sure there are no unnecessary objects inside the hood that can cause air turbulence and outflow of contaminants.
- Based upon the hazards posed by the substances being manipulated and the results of the most recent hood survey, determine whether the hood is adequate for the work contemplated.
- Perform all work and chemical manipulations at least six inches inside the hood face.
- Locate all laboratory equipment as far back in the hood as practicable and make certain that hood exhaust slots are not blocked.
- Elevate large pieces of equipment off the work surface to reduce turbulence and improve airflow characteristics, thus optimizing hood performance.
- Minimize chemical storage in the fume hood to avoid impairing its effectiveness. This will also simplify spill cleanups and reduce any complications from a fire, minor explosion, or other incident.
- Do not allow paper, disposable gloves, or other debris to be drawn into the slots at the rear of the hood. They can become trapped in the exhaust ductwork and adversely affect hood performance.
- Avoid placing your head inside hood while performing chemical manipulations. Lowering the hood sash will provide some protection to the user in the event of splashes or a minor explosion.
- It is the responsibility of the faculty professor/instructors to assure that their students use hoods properly.
- To provide proper air flow across the fume hood face, adjust the internal slots until flow is distributed evenly.

6.1.2 Fume Hood Inspection Program

- The Buildings and Grounds Department are ultimately responsible for fume hood inspections and flow testing.
- The Safety Committee is responsible for approval of any new fume hoods into the Department/laboratories.
- Nonfunctional hoods should be reported immediately to the Buildings and Grounds Department through the on-line work order request system, or by calling 315-781-3660 and not used until repaired. The Buildings and Grounds Department personnel or subcontractors, shall follow the inspection and testing procedures outlined below.
- Annual flow test and certification of fume hoods for proper exhaust airflow should be done and by a certified testing and balancing contractor.
- Air flow readings should be taken at every ten square inches of hood face.
- A measuring probe should be held by a ring stand in the plane of the sash perpendicular to opening, taking care not to stand in front of opening.
- Each reading should be averaged over a period of at least five seconds or a minimum of four readings taken at each point.

- Readings should be averaged, and no reading should deviate +/-20% from average. The acceptable average is 90 to 120 Feet per Minute.
- The sash position should be adjusted until an acceptable average is achieved. The final sash position is marked. For safe laboratory function, the hood sash must be lowered to the marked position while in use.
- The fume hood will be labeled with test date, name of tester, sash position, & average.
- Reports will be submitted to the Buildings and Grounds Department and kept on file in the CampusOptics software system.

6.1.3 Fume Hood Maintenance Program

The Buildings and Grounds Department are ultimately responsible for fume hood maintenance and preventive maintenance that should be performed on exhaust fans and controls. The Buildings and Grounds Department or subcontractors shall follow the maintenance procedures as required by manufacturer's specification.

- Before any work is performed on any fume hood during normal business hours, **especially if the power will be turned off!** notify the appropriate Science Lab Technician. They will check with the responsible professor about any ongoing work taking place in the hood. They will provide access to any necessary SDS.
- After business hours, notify the responsible Faculty professor/instructors (names are posted at the doorway of each lab) and/or the Department Chair.
- Any repair work that involves a loss of power must be done using all appropriate lock out/tag out procedures. After repair/service, verify that the hood fan is working properly and notify the lab technician that the work is complete.
- **In the event of an emergency (spill or hood failure)**: notify the responsible Faculty professor/instructors (names are posted at the doorway of each lab) and/or the Department Chair. Do not attempt to clean up any spill until all appropriate personnel have been contacted.

6.2 Microtomes

Everyone must be trained on the microtome prior to being allowed to use this piece of equipment and **require the use of cut resistance gloves (Level 5 rating).** The blades are extremely sharp!! Microtomes can present a hazard, especially when the sharp blades are left uncovered and appropriate safety controls are not employed. Microtomes must be used, operated, and maintained by qualified, trained persons in accordance with the manufacturer's recommendations.

During operation, utilize the following safety procedures:

- **The operator must first put on the correct PPE, cut resistance gloves (Level 5 rating).**
- The blade lock should always be engaged unless actively manipulating the blade (the blade lock secures the blade on the holder).
- Whenever a blade is present on the holder the blade guard must be used.

- Whenever the rotary arm is not in active use, the brake lock must be engaged. When applying the brake, ensure that it is tight. Most accidents occur when the brake slips and the operator's hand is drawn into the blade.
- The blade should be installed and removed with the aid of a clamping tool such as needle nose pliers. This is only done by the professor, who will handle blades very carefully when installing or removing. They will follow the manufacturer's installation/removal instructions explicitly and never leave blades on countertops.
- When placing or retrieving materials near the blade, use appropriate tools (such as forceps or fine- tipped paint brush) so that hands remain in the clear of the blade.
- A minimum clearance of 1 inch must be maintained between the operator's hands and the blade (point of operation) at all times.
- Blades must be stored in their transport box. For disposal, place blades in sharps container.
- Keep microtome clean of wax and properly lubricated for safe operation.
- Always wear a lab coat and goggles during use. Keep long hair tied back.
- Students may not open the top cover of the microtome (pinch hazard).
- When preparing a paraffin sample for the Microtome, remember to clamp the sample down tight. The movement allowed by a loose clamp increases your risk of cuts.
- Use forceps or small brush to retrieve slices from the boat and to retrieve ribbons, thereby keeping your hands free from the moving parts of the microtome.
- The microtome weighs 80 lbs. and should not be moved.
- Make sure all clamps are tightly in place.

6.3 Autoclaves

Autoclaves use high temperatures and pressure to inactivate biologically active material to ensure it is non-viable prior to waste disposal. **PPE Required Hot mitts** are kept on the shelf to the left of the autoclave. Bear in mind that the door, interior, and shelves are very hot and must not be touched.

6.3.1. Before use

a) Ensure that the power switch is on, the unit has warmed up for at least one (1) hour, and that the jacket pressure indicator reads 19psi.

b) Ensure that the chamber pressure is zero before opening door and that no items were left inside by the previous user.

c) Loosen closures before loading to prevent containers from shattering. Liquids should not occupy more than ¾ of the volume of their container or they will boil over. Ensure that containers are free of cracks.

d) Ensure any plastic materials are compatible with the autoclave, so that they maintain their integrity with autoclave temperatures and pressure.

e) Place solids into an autoclave bag closed LOOSLY enough that the steam can freely enter it.

f) Place a solid metal drip pan underneath liquid and semi-solid items (such as agar) to catch spills.

g) Place autoclave indicator tape on every item autoclaved and check the tape to see if a color change has occurred after the run is complete. The indicator tape confirms that the run achieved the proper temperature and pressure to inactivate biological material.

h) Close the autoclave door tightly before starting.

i) Set the proper time for the material that is being autoclaved. Dry items and small volumes of liquids can be autoclaved in 15 minutes. Larger volumes of agars or liquids can be autoclaved in 20-30 minutes. Autoclave wastes for 30 minutes to properly inactivate biological material.

j) Select run type (Fast exhaust for solids, Slow exhaust for semi-solids and liquids), and then press the on button.

6.3.2. After use

- Ensure that the chamber pressure is zero before opening door. Do not put hands, head, etc. into the steam cloud which may billow out and up as the door is opened. Use thermal protective gloves or mitts to handle the tray and/or the hot items.
- Handle carefully: liquids can "bump" or suddenly erupt and spill when the container is moved.
- Use the drip pan when removing the bags to avoid spills.
- Clean up all spilled liquid inside or outside the autoclave. Rinse the drip pan thoroughly.

6.3.3. Dispose of autoclaved waste properly

- Liquids can be disposed down the drain as long as no hazardous materials are present.
- Do not drain-dispose agar, drosophila medium, or any material that can solidify and clog the drain. Solidify agar or other media in a bag, close, and put in the regular trash.

6.4 Safety Shower and Emergency Eyewash

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

6.4.1 Safety Showers

The shower should be capable of drenching the subject immediately and should be large enough to accommodate more than one person if necessary. It should have a quick- opening valve requiring manual closing. A downward-pull delta bar is satisfactory if long enough, but chain pulls are not advisable because of the potential for persons to be hit by them and the difficulty of grasping them in an emergency.

6.4.2 Eyewash Fountains

An eyewash fountain should provide a soft stream or spray of aerated water -for an extended period (15 minutes). These fountains should be located close to the safety showers so that, if necessary, the eyes can be washed while the body is showered.

Eyewash fountains and safety shower locations should be clearly marked, and employees should be familiar with their locations and functioning. Access to eyewash and safety fountains must be free of clutter at all times.

Building and Grounds is responsible for maintaining and testing safety showers and emergency eyewash stations on the HWS campus monthly.

Faculty professor/instructors and laboratory technicians must ensure that the stations are readily accessible, never be blocked by furniture or equipment and that the stations are flushed weekly.

Safety Shower

- Flush systems and check valves for proper operation.
- Check entire unit for leaks.
- Verify proper flow rates and adjustment of shower heads.
- ANSI flow rates are minimum 30 gallons per minute at 30 PSI.

Emergency Eyewash (Fresh Water Type)

- Flush systems and check valves for proper operation.
- Check entire unit for leaks.
- Verify proper flow rates and adjustment of spray heads.
- ANSI flow rates are minimum 0.4 gallons per minute.

Emergency Eyewash (Portable)

- Make sure the units are properly stocked with fresh chemicals.
- If expiration date has expired, replace bottles.
- Check bottles for possible contamination due to physical damage.
- Check mounting backboard for damage.

6.5 All other equipment

6.5.1 Guarding for Safety

All mechanical equipment should be adequately furnished with guards that prevent access to electrical connections or moving parts (such as the belts and pulleys of a vacuum pump). Each laboratory worker should inspect equipment before using it to ensure that the guards are in place and functioning.

Careful design of guards is vital. An ineffective guard can be worse than none at all, because it can give a false sense of security. Emergency shutoff devices may be needed, in addition to electrical and mechanical guarding.

6.5.2 Glassware

Accidents involving glassware are a leading cause of laboratory injuries.

1. Careful handling and storage procedures should be used to avoid damaging glassware. Damaged items should be discarded or repaired.
2. Adequate hand protection should be used when inserting glass tubing into rubber stoppers or corks or when placing rubber tubing on glass hose connections. Tubing should be fire polished or rounded and lubricated, and hands should be held close together to limit movement if glass should fracture occur. The use of plastic or metal connectors should be considered.
3. Glass-blowing operations should not be attempted unless proper annealing facilities are available.
4. Vacuum-jacketed glass apparatus should be handled with extreme care to prevent implosions. Equipment such as Dewar flasks should be externally taped, or metal shielded. Only glassware designed for vacuum work should be used for that purpose.
5. Hand protection should be used when picking up broken glass (Small pieces should be swept up with a brush into a dustpan).
6. Proper instruction should be provided in the use of glass equipment designed for specialized tasks, which can represent unusual risks for the first-time user. (For example, separator funnels containing volatile solvents can develop considerable pressure during use).

6.5.3 Shielding for Safety

Safety shielding should be used for any operation having the potential for explosion such as:

1. Whenever a reaction is attempted for the first time (small quantities of reactants should be used to minimize hazards).
2. Whenever a familiar reaction is carried out on a larger than usual scale (e.g., 5-10 times more material).
3. Whenever operations are carried out under non-ambient conditions.

Shields must be placed so that all personnel in the area are protected from hazard.

6.5.4 Systems under Pressure

Reactions should never be carried out in, nor heat applied to, an apparatus that is a closed system unless it is designed and tested to withstand pressure. Pressurized apparatus should be equipped with relief devices. If the reaction cannot be opened directly to the air, an inert gas purge and bubbler system should be used to avoid pressure buildup.

7.0 WASTE DISPOSAL

7.1 Regulatory Policies: Hazardous Waste- Satellite accumulation Areas

Even though HWS has been classified as a Conditionally Exempt Small Quantity Generator, the colleges have responsibilities similar to other large quantity waste generators. This section outlines the college's policies and the assigned responsibilities for hazardous waste determination, labeling containers, for obtaining and maintaining SDSs handling procedures for chemicals developed in the laboratory and disposal practices.

The requirements for hazard identification as described in the standard 29 CFR 1910.1450 (h) are also included. It is the colleges' policy to follow the safe work practices whenever particularly hazardous substances are used. The person responsible for identifying those procedures involving particularly hazardous substances is the professor of a course or research project. The person responsible for establishing the designated areas to be used for each procedure involving a particularly hazardous substance is also the professor of the course or research project.

Hazardous waste is a waste that is dangerous or capable of having a harmful effect on human health or the environment. A discarded material will be deemed a hazardous waste if it exhibits any of the four hazardous waste characteristics identified below, or if it is contained on one of the four separate types of "listed waste" identified below.

Characteristic Hazardous Waste (All D-Codes):

- Ignitability: liquids with a flash point of 140°F or below, oxidizers, or spontaneously combustible materials (D-Codes)
- Corrosivity: pH≤2 or ≥12.5, (D-Codes)
- Reactivity: materials that readily explode or undergo violent reactions (D-Codes)
- Toxicity: wastes likely to leach dangerous concentrations of toxic chemicals into groundwater (D- Codes)

7.2 Satellite Accumulation Locations

There are currently Nine (9) locations at Hobart William and Smith that have been set up as satellite waste accumulation locations. These locations and Responsible persons are listed below:

CAMPUS DEPARTMENT	AREA/ROOM	RESPONSIBLE PERSON
Geoscience	103 Lansing Hall	Barb Halfman
Biology	011 Rosenberg	Patricia Wallace
Chemistry	Lansing Basement	Emily Morse
Physics	Eaton Hall B-28	Stephen Blanchard
Building & Grounds	Universal Waste	Glenn Brubaker
Building & Grounds	Hazardous Waste Storage Shed	Glenn Brubaker

Finger Lakes Institute	FLI Basement Lab	Trevor Massey
Studio Arts	Carriage House (darkroom), Katherine Elliott Studio Arts Building room 105	Stephen Blanchard
Studio Arts	(Printmaking Studio) and room 104 (3-D Studio Design)	Stephen Blanchard

An outside vendor manages the packaging, shipping and offsite disposal of the hazardous wastes generated on site and stored in the accumulation sites. The disposal events occur twice per year, typically in July or August and December or January. If the cabinets become full prior to these disposal times, please contact Martin Corbett at the Office of Campus Safety (315-781-3004) who will arrange to move some of the wastes to the Hazardous Waste Storage Shed next to the Buildings and Grounds building.

It must be noted that hazardous waste may not be moved from any satellite location to the hazardous waste storage shed by vehicle on public roadways. Every effort should be made to maintain hazardous waste at the satellite location until packaging and pickup by the outside vendor.

7.3 Responsible Person

If the composition of the chemical substance produced exclusively for the laboratory's use is known, the CHOs shall determine if it is a hazardous chemical as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. If the chemical is determined to be hazardous, the CHO shall provide appropriate handling procedures. If the chemical produced is a byproduct whose composition is not known, the faculty professor/instructors along with the CHOs shall assume that the substance is hazardous and shall implement precautions recommended in the CHP or SOP (if applicable).

Proper labeling is the responsibility of the faculty professor/instructors in whose lab the substance is stored, used, or generated. All laboratories will have a sign posted indicating the person responsible for the area.

7.4 Waste Disposal Procedures

Hazardous wastes are generated by the HWS various Departments through laboratory exercises completed as part of the curriculum for certain courses as well as through research projects. The purpose of this section is to outline the procedures for handling, storage, and disposal of these wastes.

7.4.1 Hazardous Waste Handling

Personal protective equipment (i.e., safety glasses, chemical resistant gloves, lab coats, etc.) is available and is to be worn as appropriate during the handling of hazardous waste.

Containers used for hazardous wastes generated anywhere on campus should leak-proof, compatible with the material and sealed before movement.

Other container requirements that must be followed:

- Verify that the containers are clean and do not contain residues that may react with waste when transferred into the container.
- Containers are to be always closed except when waste is being transferred into the container.
- A container is “empty” if:
  - All material that can be removed from the container using practices commonly employed (e.g., pouring, pumping, aspirating) has been removed and,
  - No more than one inch of residue remains in the bottom of the container or no more than 3 percent by weight of the total capacity of the container.
- The container holding the hazardous waste should also be marked with the words "Hazardous Waste.”
- The container must be in good condition. This means no cracks, no rust, and no leaks.
- If there is waste which is not identified or is a new waste stream, please contact the Campus Safety Office to notify the waste vendor for proper waste profiling and identification of offsite disposal options (see section 8.4.3).

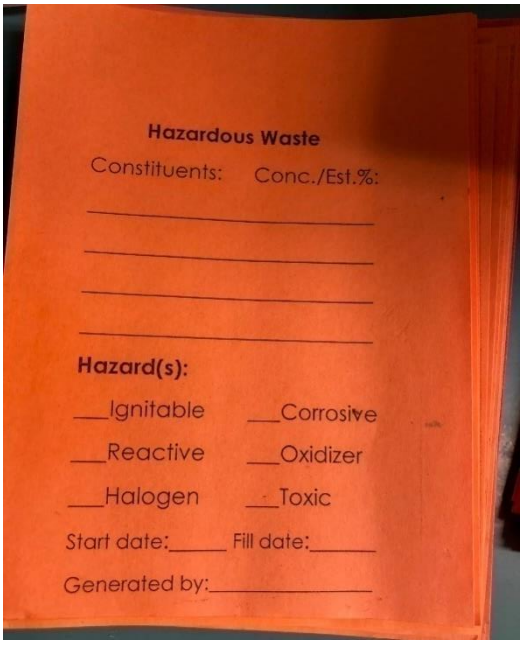
Original labels on incoming containers of hazardous chemicals are not to be removed or defaced. When anyone transfers chemicals to a new container, she/he must label the new container with name of chemical, date, and appropriate hazard warning(s).

Accumulation of hazardous waste in any satellite accumulation area must not exceed 55 gallons at any time.

Department Faculty professor/instructors shall manage each department’s laboratory waste stream until the Campus Safety Office is notified to pick up the waste has been packaged for additional segregation and final disposal. All waste must be labeled as such and accompanied by a Hazardous Waste Disposal Request Form below.

Hazardous Waste labels are to be affixed to the containers clearly identifying the chemical name(s) of the substance(s) stored in the containers as well as the type of hazard(s) present. To the extent known, the concentration of the various chemical components of the

hazardous waste should be listed on the label. An example of a hazardous waste label is shown below.



When the waste generation activity is complete or the container is full, laboratory personnel will transfer the container of waste to the Satellite Accumulation Area (SAA) . Prior to placing the container in the cabinet, the laboratory personnel will enter the waste information on the hazardous waste entry log affixed to the storage cabinet and evaluate whether the waste is compatible with the other wastes stored in that cabinet.

Information on chemical compatibilities can be found on the Safety Data Sheets (SDSs) for the chemicals in question. In addition, the following are general guidelines with respect to compatibility:

1. Store acids and bases separately.
2. Keep acids apart from cyanides or sulfides
3. Acids should never be put into steel containers.
4. Water-reactive, strong acids such as organic acid halides, organic acid anhydrides, inorganic acid anhydrides, and strong acidic salts must be kept apart from both alkalis and water.
5. Oxidizing agents must be kept apart from reducing agents and organic compounds.
6. Water-reactive agents must be stored apart from water, aqueous solutions, and acids.
7. Air-reactive materials must be packed in containers that are sealed off from the atmosphere.

7.4.2 Offsite Disposal

An outside vendor manages the packaging, shipping and offsite disposal of the hazardous wastes generated by the various departments and stored in the SAAs. The disposal events occur twice per year, typically in July or August and December or January. If the cabinets become full prior to these disposal times, please contact Martin Corbett at the Office of Campus Safety (315-781-3004) who will arrange to move some of the wastes to the Hazardous Waste Storage Shed next to the Buildings and Grounds Building.

It should be noted that hazardous waste being moved from an SAA to the hazardous waste storage shed cannot be transported by vehicle if that vehicle must utilize or cross a public roadway. Hazardous waste must be moved by hand if under the above circumstance.

FLI personnel should not transport hazardous waste from the FLI Building Satellite Accumulation to the Hazardous Waste Storage Shed.

7.4.3 Unidentified Waste

If there is deemed a Hazardous waste that is not part of the normal approved waste codes, then Martin Corbett Office of Campus Safety (315-781-3171) must be notified to have the approved waste vendor come take a sample to have the waste correctly identified prior to pick up per the NYS RCRA regulations. The waste vendor will then contact a certified analytical laboratory who can identify/characterize the waste.

7.4.4 Biohazardous Waste

- Biohazard waste will be placed in biohazard containers and display the international biohazard waste symbol.
- All biohazard waste sent to the autoclave for decontamination shall be in leak-proof containers. Secondary containment for autoclave bags helps prevent spills of material from unexpected tears. Do not place plastic transport containers into the autoclave; use the stainless-steel autoclave pans.
- Frogs are only used for breeding. The only thing used in the lab are embryos, when the labs are over, they are frozen and discarded in the municipal waste. Whenever an adult frog has been euthanized, they were also frozen and then discarded in the municipal waste. The adults were euthanized solely to harvest the testes, no treatments were conducted.
- The fruit flies are euthanized in ethanol and disposed of with ethanol waste.
- Roaches are used for experiments; those are frozen and then discarded in municipal waste as well (all their bedding is frozen anytime cages are cleaned).
- The preserved specimens (cats, brains, etc.) are discarded in municipal waste, as they are not considered hazardous. Certain wastes may be disposed of into municipal garbage after autoclaving with permission from the CHO.
- The CHOs is required to properly dispose of HWS waste at a permitted disposal facility before the satellite storage reaches 2,220 pounds and ensure that laboratories do not generate more than 220 pounds per month to maintain its Conditionally Exempt Small Quantity Generator status. This will be inspected per the monthly environmental Hazardous Waste inspection and Martin Corbett will be notified of the pickup need.
- Sharps disposal containers should be present for the proper disposal of laboratory sharps. When these are full, department technicians will notify the Campus Security for removal and transport to the Hubbs Health Center for removal.

8.0 EMERGENCY RESPONSE

8.1 Emergency Procedure

The full Emergency action plans (EAPs) can be found on the Campus Safety Website. The information provided below will pertain only to a laboratory emergency and outline per regulatory requirements only.

Emergency telephone numbers to be called in the event of fire, accident, flood, or hazardous chemical spill should be posted prominently in each laboratory. Campus Safety must be alerted immediately (either by calling x3333 or 315-781-3333 or by activating the fire alarm) if any of the following apply:

- Fire (Any fire!)
- Spill of more than 50 mL of any chemical that is rated 3 or 4 in any category.
- Spill in which students or Faculty professor/instructors may be exposed to levels that may exceed the STEL, for example spills of volatile hazardous materials outside of the fume hood.
- Student, Faculty professor/instructors or staff needs medical attention.
- Professor staff or student feels it is appropriate to call Campus Safety.

In addition, the Provost Office must be alerted immediately at x3304 if any of the following apply:

- Student or Faculty professor/instructors needs medical attention.
- Student or Faculty professor/instructors feels it is appropriate to call the Provost Office.

There are three forms (See Appendix 10) for reporting accidents:

1. Initial Investigation of Possible Overexposure- This is required for accidents in which employees or students have been exposed to enough hazardous materials that there may be significant damage.
2. Physician's Written Opinion for Medical Consultation- Required if the exposure merits medical attention.
3. Accident Report Form- required whenever the first two forms are required as well as any time there is a significant accident that may not involve chemical exposure.

Minor accidents involving restricted spills, broken glassware, or small cuts, burns, or abrasions require completion of the forms only at the professor's discretion. When necessary, form(s) should be completed as promptly as possible without hindering rapid response to the problem. In any event, the form(s) should be completed before the end of the next working day.

The hard copy should be sent to the HWS HR department. A hard copy or electronic version should be sent to the Associate Dean responsible for Sciences in the Provost's Office. A copy should also be sent to the CHO for reporting into the Safety Committee each month. Faculty professor/instructors may also want to retain a hard or electronic copy.

When accidents involve particularly hazardous materials (see section 9.3), a copy of the Hazardous Chemical Procedure Form (which will have been completed before the particularly hazardous materials were handled) should be attached to the other forms.

The purpose of these forms is to provide critical information in the event of an accident, to help the chemical hygiene committee formulate improvements in our practices to avoid accidents in the future, and to inform appropriate administrators. The *Hazardous Chemical Procedure Form* (Appendix 10) contains information that will be useful in in the chemical hygiene committee's evaluation of any accidents involving particularly hazardous compounds.

8.2 Medical Procedure

HWS provides employees and students who work with hazardous chemicals an opportunity to receive free medical attention or, in some cases, surveillance if a student complains of symptoms resulting from an exposure after the professor or lab supervisor is advised of an abnormal exposure (e.g., spillage on skin) of a hazardous substance and deems a medical examination desirable.

Finger Lakes Health
196 North Street
Geneva, NY 14456
315-787-4000

After any acute exposure event, employees and student should go to Geneva General Hospital. It is important to provide the physician with the following information:

- The identity of the substance(s) to which the patient has been exposed. An SDS sheet for each substance should be included.
- A description of the conditions, time, and date of the exposure. This should include all pertinent information including quantity of hazardous substance, duration of exposure, location of injuries or sites of contact.
- A description of the symptoms the student is experiencing. This should include an indication of the time elapsed from exposure for the first appearance of the symptoms.
- This information should be provided by completing the following form to be given to the physician. A copy of this form should remain on file at the colleges for at least three years.
- The physician will be requested to provide a written report to the student/employee as well as to the HWS HR department for required filing and retention. The student should be provided with the form "Physician's Written Opinion for Medical Consultation."

8.3 Spill response

People authorized to address significant spills outside hoods or laboratories should receive initial and refresher spill response technician training such as recommended in 29 CFR 1910.1450 App A subpart Z (b).

- Clean-up supplies should be determined by reviewing material safety data sheets.
- Spill supplies for flammable liquids shall have the capability to control the liquid portion of the spill and minimize the production of flammable vapors.
- In the event of a large chemical spill (generally over four liters), all personnel in the area should be either alerted or evacuated depending on the chemical involved.

- Faculty professor/instructors, employees, and students should not attempt to handle extremely large releases of flammable or extremely hazardous liquids (e.g. over four liters of cyanide or sulfide solutions). Instead, they should turn off all ignition sources, vacate the laboratory immediately and call Campus Safety immediately to request a fire department response. Emergency telephone numbers to be called in the event of fire, accident, flood, or hazardous chemical spill are posted prominently in each laboratory. The faculty professor/instructors should also be notified immediately in the event of an accident or emergency.

9.0 INDIVIDUAL DEPARTMENTS

9.1 Biology Department

It is the Biology Department policy for all students and employees to follow the safe work practices and standard operating procedures described in the preceding sections of this CHP and any additional practices deemed necessary by the professor of the course. The person responsible for ensuring that students follow the established procedures is the professor of the course or research project. Faculty professor/instructors are also responsible for ensuring that all hazardous materials submitted to laboratory technician, for procurement or disposal have been identified for hazardous properties and characteristics.

9.1.1 Biology Laboratories

It is the policy of the Biology Department to identify all areas that are engaged in laboratory use of hazardous chemicals. The areas covered by this CHP are listed and illustrated in the following table.

Laboratory Supervisor	Location	General Activities
Wallace	Rosenberg 003	Labware-washing, autoclaving
Deutschlander	Rosenberg 004	Research laboratory
Dept/Wallace	Rosenberg 005	Research laboratory
Dept/Wallace/Knouse	Rosenberg 010	Research & teaching Conviron lab
Wallace	Rosenberg 011	Stockroom
Wallace	Rosenberg 011.1	Prep room
Bio, Chem, & Geo Depts.	Rosenberg 112	Cold room
Deutschlander/Cosentino	Rosenberg 124	Research & teaching laboratory
	Rosenberg 208	Office
	Rosenberg 209	Office
Dept.	Rosenberg 210	Research & teaching laboratory
Carle/Kenyon	Rosenberg 212	Carle/Kenyon research lab
Dept.	Rosenberg 213	Research & teaching laboratory
Dept.	Rosenberg 213.1	Research & teaching laboratory
Dept.	Rosenberg 214	Research & teaching laboratory
Dept.	Rosenberg 215	Research & teaching laboratory
Dept.	Rosenberg 216	Research & teaching laboratory
Dept.	Rosenberg 216.1	Research & teaching laboratory
Dept.	Rosenberg 217	Research & teaching laboratory
Brown/Cushman	Eaton 119	Brown/Cushman Research lab
Jensen	Eaton 121A	Jensen Research lab
Mowery	Eaton 202	Mowery Research lab
Dept.	Eaton 204	Research & teaching laboratory
Dept.	Eaton 209	Research & teaching laboratory
Dept.	Eaton 212	Research & teaching laboratory
Laboratory Supervisor	**Location**	**General Activities**

Straub	Eaton 218	Straub Research laboratory
Dept./Knouse/Wallace	Eaton 220	Research & teaching Conviron lab
Knouse	Eaton 303A	Animal laboratory
Knouse	Eaton 303B	Animal laboratory
Knouse	Eaton 303C	Animal laboratory
Knouse	Eaton 303D	Animal laboratory
Knouse	Eaton 303E-H	Animal laboratory
Dept.	Eaton 304 & 306	Research/Teaching Lab & Storage
Dept./Knouse/Wallace	Eaton Greenhouse	Greenhouse

All Faculty professor/instructors, students and staff who must work with select carcinogens, reproductive toxins or substances of acute toxicity must do so in an appropriately designated area. A designated area may be the entire laboratory, an area of a laboratory or a device such as a laboratory hood.

All designated areas should be clearly marked. A sample label may be posted as follows:

DANGER:
DESIGNATED AREA
FOR CARCINOGENS, REPRODUCTIVE TOXINS AND
ACUTELY TOXIC CHEMICALS.
AUTHORIZED PERSONNEL ONLY

9.1.2 Biology's Responsible Technician

The Biology Laboratory technician, Patricia Wallace, Rosenberg 002, will be responsible for the Rosenberg 011 stockroom.

Chemicals are stored in the stockroom, segregated by class. The stockroom must be locked at all times. Individuals accessing the stockroom will follow all the proper material handling techniques and use proper protective equipment. Storage is based on compatibility, and storage requirements. Food/beverage is not allowed in the stockroom or in any lab. All refrigerators used to store chemicals will have warning signs. Flammable chemicals will be stored in vented cabinets. Unknown substances shall be assumed toxic and must be stored accordingly.

The responsible for maintaining the overall inventory and inventories for teaching labs also belongs to Patricia. Each Faculty professor/instructors member is also responsible for assisting with this task by informing her when chemicals are to be permanently transferred to another location Safety Data Sheets (SDS) and a listing of chemicals are maintained and available on CampusOptics.

Patricia's responsibilities also include the management of the Biology Department's laboratory waste stream until the Campus Security Manager has been notified to pick up the waste for additional segregation and final disposal.

9.1.3 Inspection Requirements

The lab shall be inspected every month per the approved form (see appendix 10.6).

It is the responsibility of the professor whose students are working in the lab to assure the lab has passed inspection. Preferably, the inspection should be done every three months.

Inspection is done using a form posted in every laboratory. (If no form is posted, the professor should obtain a copy of the form and post it.) If the laboratory does not pass inspection in every category, it may not be used until the problem is corrected.

9.1.4 Biology Department Spill Kit Locations

- Eaton 304 (under sink on north wall),
- Eaton 220 (on top of acid cabinet),
- Eaton 121 (below fire extinguisher behind door),
- Rosenberg 216 (shelf above eye wash),
- Rosenberg 124 (on top of filing cabinet),
- Rosenberg 011 (row 1 shelf 5).

9.1.5 Biology Student Training

The faculty professor/instructors shall provide students with information and training to ensure that they are apprised of the hazards of chemicals present in their laboratory work. Such information shall be provided at the time of a student's first biology course. The frequency of refresher information and training shall be determined by the faculty professor/instructors. Normally this will occur each new biology course the student takes. Review as well as discussion of hazards specific to the new course will be covered. Additional training will be provided immediately prior to an experiment when deemed necessary by the professor. Faculty professor/instructors also must provide safety training and information to their research students.

Training varies according to the faculty professor/instructor's estimation of need based upon chemicals being used in the lab. Typically, students are required to obtain a book, Working Safely with Chemicals in the Laboratory, and do a worksheet to supplement the reading lecture. A quiz may be given in the second lab meeting. The worksheet must be completed accurately; the results of the worksheet and/or the quiz are included in the course grade. The results (quiz and worksheet) are to be forwarded to HR for up to a retention period of at least 4 years based upon regulatory requirements.

Whenever a new hazard is introduced into a course, students will be informed of the new hazard and receive the appropriate training given by the department's faculty professor/instructors. Students will receive refresher training as well as additional training every time they take a course. Additional training is provided immediately prior to every experiment when deemed advisable by the professor.

9.2. Chemistry

9.2.1 Chemistry Laboratories

It is the policy of the Chemistry Department to identify all areas that are engaged in laboratory use of hazardous chemicals. The areas covered by this CHP are listed and illustrated in the following table.

Laboratory Supervisor	Location	General Activities
Christine de Denus	Rosenberg 013	GC-MS and NMR Analyses
Kristin Slade	Rosenberg 117	Biochemistry
Walter Bowyer	Rosenberg 119	Analytical Chemistry Research
Justin Miller	Rosenberg 120 & 121	Organic Chemistry Research
Erin Pelkey	Rosenberg 122 & 123	Organic Chemistry Research
Chemistry Dept Chair	Lansing 113	Research Instrumentation lab
Walter Bowyer	Rosenberg 115 & 116	Analytical Chemistry Research
Christine de Denus	Lansing 200A	Inorganic and Physical Chemistry
Chemistry Dept Chair	Lansing 200B	General Chemistry
Christine de Denus	Lansing 200E	Inorganic Chemistry Research
Kristin Slade	Lansing 202	Biochemistry Research
David Slade	Lansing 204	Organic Chemistry
Matt Church	Lansing 205-C	Physical Chemistry Research
Emily Morse	Lansing 207	Prep Lab

9.2.2 Chemistry's Responsible Individual

It is the policy of the department that all hazardous materials will be handled only in fume hoods. Containers outside of fume hoods must be closed and clean. It is the responsibility of each Faculty professor/instructors to guarantee that hazardous materials are handled in fume hoods with appropriate personal protection in his/her courses and research.

The Chemistry Dept. Lab Technician is responsible for maintaining the overall inventory and inventories for teaching labs. Each Faculty professor/instructors is responsible for assisting the Lab Tech in this by informing them when chemicals are moved or exhausted. The lab Tech shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced. When anyone transfers chemicals to a new container, they must label the new container with name of chemical, date, and appropriate hazard warning(s).

Each Faculty professor/instructors is responsible for maintaining the inventory of their research lab(s). When a reagent is completely exhausted, the empty bottle should be placed in the chemical disposal bin located in Lansing 207 so that the Lab Tech can update the inventory. The lab Tech will remove labels from all exhausted bottles, and the empty bottle will be labeled as **"RCRA EMPTY".**

Safety Data Sheets (SDS) are available in Lansing 200B4 as well as in the CampusOptics software, chemical inventory database.

All laboratories will have a sign posted indicating the person responsible for the area, that hazardous chemicals are present, and that anyone bringing in or removing hazardous materials should update the room inventory.

9.2.3 Inspection Requirements

The lab shall be inspected every month per the approved form (see appendix 10.6).

It is the responsibility of the professor whose students are working in the lab to assure the lab has passed inspection within the past six months. Inspections of all teaching and research labs are to be performed monthly. It is the responsibility of the Chair (or designee) to verify the inspection by the end of the month. Inspection is done using a form posted in every laboratory or available in Campus Optics (If no form is posted, the professor should obtain a copy of the form and post it.). If the laboratory does not pass inspection in every category, it may not be used until the problem is corrected.

9.2.4 Department Spill Kit Locations

There is a department skill kit located in Lansing 207 near the door. It is clearly labeled in a large yellow bag.

9.2.5 Chemistry Student Training

The faculty professor/instructors shall provide students with information and training to ensure that they are apprised of the hazards of chemicals present in their laboratory work. Such information shall be provided at the time of a student's first chemistry course. The frequency of refresher information and training shall be determined by the faculty professor/instructors. Normally this will occur each new chemistry course the student takes. Review as well as discussion of hazards specific to the new course will be covered. Additional training will be provided immediately prior to an experiment when deemed necessary by the professor. Faculty professor/instructors also must provide safety training and information to their research students.

Training varies according to the faculty professor/instructor's estimation of need based upon chemicals being used in the lab. Typically, students are required to obtain a book, Working Safely with Chemicals in the Laboratory, and do a worksheet to supplement the reading lecture. A quiz may be given in the second lab meeting. The worksheet must be completed accurately; the results of the worksheet and/or the quiz are included in the course grade. The results (quiz and worksheet) are to be forwarded to HR for up to a retention period of at least 4 years based upon regulatory requirements.

Whenever a new hazard is introduced into a course, students will be informed of the new hazard and receive the appropriate training given by the department's faculty professor/instructors. Students will receive refresher training as well as additional training every time they take a course. Additional training is provided immediately prior to every experiment when deemed advisable by the professor.

9.3 Geoscience

9.3.1 Geoscience Department

It is the policy of the Geosciences Department to identify all areas that are engaged in laboratory use of hazardous chemicals. The Geoscience department employees and students will follow the safe work practices and standard operating procedures described in the preceding sections of this CHP and any additional practices deemed necessary by the professor of any course.

9.3.2 Geoscience Laboratories

The areas covered by this CHP are listed and illustrated in the following table.

Laboratory Supervisor	Location	General Activities
Barb Halfman	Lansing Hall 002	Rock Saw Room
Barb Halfman	Lansing Hall 004	Teaching Lab
Tara Curtin/Dave Finkelstein	Lansing Hall 100	Sedimentology Lab
Tara Curtin/Dave Finkelstein	Lansing Hall 103	Geochemistry Lab
Nan Arens	Lansing Hall 109	Palynology Lab
Dave Finkelstein	Lansing Hall 113	Ion Chromatography lab

9.3.3 Responsible Individual

It is the responsibility of the faculty professor/instructors of any particular courses or research project to develop Standard Operating Procedures (SOP)that are adequate to protect laboratory workers who use hazardous chemicals. All standard operating procedures (SOPs) should consider at least the following safety considerations: lab hood use, PPE usage, adding acid to water, potential chemical reactions, and other rules as listed in the Lab Safety Manual. These SOPs will be made available to laboratory workers in the Geoscience Lab Safety Manual for each appropriate procedure and copies will be maintained in each Geoscience laboratory.

Faculty professor/instructors and the laboratory technician are authorized to order chemicals for the department. It is the HWS Geoscience Department's policy to develop and maintain a list of the chemicals used in each laboratory area. The Geoscience laboratory technician is responsible for maintaining the overall inventory and inventories for teaching labs. Each Faculty professor/instructors is responsible for informing the lab technician what chemicals are to be utilized in their research labs.

It is the HWS Geoscience Department's policy to develop and maintain a list of all chemicals used in each laboratory area and provide access to appropriate Safety Data Sheets (SDS) in those areas. Safety Data Sheets (SDS) and a listing of chemicals are maintained and available in the CampusOptics chemical inventory database.

The Geoscience laboratory technician is responsible for maintaining the overall chemical inventory and chemical inventories for teaching labs. Each Faculty professor/instructors is also responsible for informing the lab technician what chemicals are to be utilized.

9.3.4 Inspection Requirements

It is the responsibility of the laboratory supervisor listed in section 9.3.1 to inspect their assigned lab(s). Inspections will be performed using the approved laboratory inspection form (see appendix 10.6) three times per year, at the end of the fall semester (January), at the end of the spring semester (June) and at the end of the summer research session (August).

If the laboratory does not pass inspection in every category, it may not be used until corrective action is taken.

9.3.5 Department Spill Kit Locations

- Lansing 100 - On the wall next to the laboratory entrance door.
- Lansing 103 – On the wall next to the laboratory entrance door.
- Lansing 109 – Hydrofluoric Acid spill kit located in large yellow bag.

9.3.6 Geoscience Student Training

It is the responsibility of faculty professor/instructors and laboratory supervisors to ensure personnel working in laboratories under their supervision have been provided with proper training, have received information about the hazards in the laboratory they may encounter, and have been informed about ways the students and employees can protect themselves. The HWS Geoscience Department will provide faculty professor/instructors and students with information and training to ensure that they are aware of the hazards of chemicals present in their work area. This training will occur before the faculty professor/instructors or student is allowed to work in any area where hazardous chemicals may be encountered.

9.4 Finger Lake Institute (FLI)

9.4.1 FLI Laboratories

It is the policy of the Finger Lakes Institute to identify all areas that are engaged in laboratory use of hazardous chemicals.

Laboratory Supervisor	Location	General Activities
Lisa Cleckner	FLI Basement	Chemical Analyses
Lisa Cleckner	Baker Water Quality Lab	Chemical Analyses

9.4.2 FLI Responsible Individual

The FLI Laboratory Manager, Trevor Massey, and along with lab staff is responsible for maintaining the chemical inventory of the FLI laboratory under the FLI laboratory supervisor. Evan Helming, the Baker Water Quality Lab, Technical Lead is also responsible for assisting with the chemical inventory by informing the FLI laboratory supervisor when chemicals are procured or permanently transferred to another location.

It is the FLI's policy to develop and maintain a list of hazardous chemicals used in the laboratory area in the CampusOptics chemical inventory software. Safety Data Sheets (SDS) are available and linked to the chemical inventory in the Campus Optics database.

The FLI Laboratory Manager and Baker Lab Technical Lead will be responsible for assuring proper chemical storage in the laboratory; however, all others working in the laboratory are expected to return chemicals to their proper storage locations after use. Only upon approval by the FLI Laboratory Supervisor may chemicals be checked out of the laboratory for use in other departments.

The FLI Laboratory Manager and Baker Lab Technical Lead shall manage the FLI laboratory waste stream until the CHOs have been notified to pick up the waste for additional segregation and final disposal.

9.4.3 Inspection Requirements

The lab shall be inspected every month by the FLI Laboratory Manager and baker Lab Technical Lead for safety compliance per the approved form (see appendix 10.6).

Monthly inspections and annual maintenance checks of fire extinguishers, as per 29 CFR 1910.157, are to be completed by Campus Safety Personnel. Fire drills are to be performed at least twice each year. A New York State Fire Inspector performs fire inspections of the buildings annually.

9.4.4 Department Spill Kit Locations

- In the basement lab storage annex adjacent to the designated laboratory chemical waste container

9.4.5 FLI Employee/Student Training

The FLI provides employees with information and training on hazardous chemicals in their work area, at time of initial assignment, and prior to assignments involving new exposure situations to ensure employees are apprised of the hazards of chemicals present in their

work area. The FLI Laboratory Supervisor, or a suitable delegated member of the FLI, is to conduct initial information and training sessions for new employees.

Student training varies according to the laboratory supervisor's estimation of need. Whenever a new hazard is introduced, students will be informed of the new hazard and receive the appropriate training. Additional training is provided immediately prior to every chemical procedure when deemed advisable by the laboratory supervisor.

9.5. Physics Department

9.5.1 Physics Department

It is the policy of the Physics Department to identify all areas that are engaged in laboratory use of hazardous chemicals. The Physics department employees and students will follow the safe work practices and standard operating procedures described in the preceding sections of this CHP and any additional practices deemed necessary by the professor of any course.

9.5.2 Physics Laboratories

The areas covered by this CHP are listed and illustrated in the following table.

Laboratory Supervisor	Location	General Activities
Steve Penn	Eaton B15	Experiments Involving Nitrogen
Stephen Blanchard	Eaton	Machine Shop/Chemical Storage

9.5.3 Physics Responsible Technician

The Physics Department Laboratory Technician is responsible for maintaining the overall chemical inventory and inventories for teaching labs. Each Faculty professor/instructors is responsible for assisting the lab technician in this by informing them when chemicals are moved or exhausted. They shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced. When anyone transfers chemicals to a new container, they must label the new container with name of the chemical, date, and appropriate hazard warning(s).

Liquid nitrogen is stored in the Physics machine shop. The lab technician shall be appraised of the nitrogen alarm inspection schedule and notified when the inspections are carried out.

The lab technician will ensure that all hazardous waste is properly labeled and stored in an approved satellite waste storage location.

It is the HWS Physics Department's policy to develop and maintain a list of all chemicals used in each laboratory area and provide access to appropriate Safety Data Sheets (SDS) in those areas. Safety Data Sheets (SDS) and a listing of chemicals are maintained and available in the CampusOptics chemical inventory database.

All laboratories will have a sign posted indicating the person responsible for the area, that hazardous chemicals are present, and that anyone bringing in or removing hazardous materials should update the room inventory.

9.5.4 Inspection Requirements

The lab shall be inspected by the laboratory supervisor every month using the approved form located in each lab, (see appendix 10.6).

It is the responsibility of the professor whose students are working in the lab to assure the lab has passed inspection within the past six months. Inspections of all teaching and research labs are to be performed monthly. It is the responsibility of the Chair (or designee) to verify the inspection by the end of the month. Inspection is done using a form posted in every laboratory or available in Campus Optics (If no form is posted, the professor should obtain a copy of the form and post it.).

If the laboratory does not pass inspection in every category, it may not be used until the problem is corrected.

9.5.5 Department Spill Kit Locations

- No spill kits.

9.5.6 Physics Student Training

It is the responsibility of faculty professor/instructors and laboratory supervisors to ensure personnel working in laboratories under their supervision have been provided with proper training, have received information about the hazards in the laboratory they may encounter, and have been informed about ways the students and employees can protect themselves. The HWS Physics Department will provide faculty professor/instructors and students with information and training to ensure that they are aware of the hazards of chemicals present in their work area. This training will occur before the faculty professor/instructors or student is allowed to work in any area where hazardous chemicals may be encountered. In the Physics Department, the main concern is the safe use and storage of liquid nitrogen.

Whenever a new hazard is introduced into a course, students will be informed of the new hazard and receive the appropriate training. Students will receive refresher training as well as additional training every time they take a course. Additional training is provided immediately prior to every experiment when deemed advisable by the professor.

9.6. Arts Department

9.6.1 Arts Department

It is the policy of the Arts Department to identify all areas that are engaged in laboratory use of hazardous chemicals. The Arts department employees and students will follow the safe work practices and standard operating procedures described in the preceding sections of this CHP and any additional practices deemed necessary by the professor of any course.

9.6.2 Arts Laboratories

The areas covered by this CHP are listed and illustrated in the following table.

Laboratory Supervisor	Location	General Activities
Phyllia Yi	Elliott 105	Printmaking, Acid Etching, Wood Carving
Steve Blanchard	Elliott 104D	Woodworking
Adjunct Faculty	Elliott 104	3D Design (sculpting, finishing)
Adjunct Faculty	Elliott 104A	Metalworking

9.6.2 Art's Responsible Technician

The woodshop technician will be responsible for chemical safety in the Art Department

It is the policy of the Art's Department that all hazardous materials in the printmaking shop (Elliott 105) will be handled only in fume hoods. Containers outside of fume hoods must be closed and clean. It is the responsibility of each Faculty professor/instructors to guarantee that hazardous materials are handled in fume hoods with appropriate personal protection in his/her courses and research. In particular, the technician will ensure that nitric acid is diluted to 9:1 before use. Only the instructor or technician may handle undiluted nitric acid.

The Arts Department Laboratory Technician is responsible for maintaining the overall chemical inventory and inventories for teaching labs. Each Faculty professor/instructors is responsible for assisting the lab technician in this by informing them when chemicals are moved or exhausted. They shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced. When anyone transfers chemicals to a new container, they must label the new container with name of the chemical, date, and appropriate hazard warning(s).

The lab technician will ensure that all hazardous waste is properly labeled and stored in an approved satellite waste storage location.

It is the HWS Arts Department's policy to develop and maintain a list of all chemicals used in each laboratory area and provide access to appropriate Safety Data Sheets (SDS) in those areas. Safety Data Sheets (SDS) and a listing of chemicals are maintained and available in the CampusOptics chemical inventory database.

All laboratories will have a sign posted indicating the person responsible for the area, that hazardous chemicals are present, and that anyone bringing in or removing hazardous materials should update the room inventory.

9.6.3 Inspection Requirements

The Art's labs shall be inspected every month per the approved form (see appendix 10.6).

It is the responsibility of the professor whose students are working in the lab to assure the lab has passed inspection within the past six months. Inspections of all teaching and research labs are to be performed in March and September. It is the responsibility of the Chair (or designee) to verify the inspection by the end of the month. Inspection is done using a form posted in every laboratory (If no form is posted, the professor should obtain a copy of the form and post it.).

If the laboratory does not pass inspection in every category, it may not be used until the problem is corrected.

9.6.4 Department Spill Kit Locations

- Elliott 105, located beneath the sink in the spray booth alcove of the printmaking shop.

9.6.5 Arts Student Training

The faculty professor/instructors shall provide students with information and training to ensure that they are aware of the hazard's chemicals present in their artwork. Such information shall be provided at the time of a student's first art course. The frequency of refresher information and training shall be determined by the faculty professor/instructors.

A separate training will be conducted for printmaking students regarding the danger of and proper use of nitric acid and protective gear (PPE) to be utilized during its use. The Arts lab tech will present a brief lecture on these issues.

Faculty professor/instructors also must provide safety training and information to their research students.

Whenever a new hazard is introduced into a course, students will be informed of the new hazard and receive the appropriate training. Students will receive refresher training as well as additional training every time they take a course. Additional training is provided immediately prior to every experiment when deemed advisable by the professor.

Appendix

10.1 HWS Procurement Form

HWS PROCUREMENT FORM

If the chemical is not new to the department, answer only questions 1-7. If the chemical is new to the department, answer all the questions.

1. Person responsible for this chemical

_____

2. Name of chemical

_____

3. CAS # _____ (unique identifier for this compound)

4. Supplier _____

5. Catalog # _____

6. Quantity to be ordered _____

7. Specific location in which it will be stored

_____

8. Attach the SDS. Circle your answer to the following questions about the nature of this substance:

Is it a strong corrosive?	Yes	No
Is it highly flammable?	Yes	No
Is it a strong oxidizer?	Yes	No
Is it water reactive?	Yes	No
Is it shock sensitive?	Yes	No
Does it form peroxides?	Yes	No
If ingested, inhaled or contacts skin, is it lethal?	Yes	No
Is it a known or anticipated human carcinogen?	Yes	No

Describe any other significant health or physical hazards associated with this chemical.

_____

_____

_____

_____

10.2 HWS Hazardous Waste Form

Return Form To: Department technician
HAZARDOUS WASTE
DISPOSAL REQUEST FORM

Responsible Facility / Staff Member:		Building, Room, Phone:		Location of Waste:
Identification / Description of Waste Chemicals	Solid Liquid Gas	pH	Number, Size and Type of Container i.e. 3x4L bottle	Volume or Weight in Container i.e. 1000ml / 850 gm

SPECIAL NOTES OR HANDLING INSTRUCTIONS:

GENERATORS CERTIFICATION: The undersigned hereby certifies that the above information is accurate and complete to the best of his/her knowledge and that the above-named material is properly packaged, labeled and is in proper condition for transportation. No explosive, shock sensitive or extremely hazardous materials are listed above.

Signature: Date:

Keep a copy of this form for your department records and send a copy to Human Resources.

10.3 HWS EXPOSURE INCIDENT REPORT FORM

EXPOSURE INCIDENT REPORT FORM
INITIAL INVESTIGATION OF
POSSIBLE OVER-EXPOSURE FORM
(Page 1 of 2)

Date of incident: _____ Date of interview: _____

Name of Student: _____

Telephone No.: _____

Course: _____

Faculty professor/instructors: _____

Name of chemical(s) in use: _____

_____
(Attach SDS to this report)

Time of incident: _____

Duration of exposure: _____

Amount of chemical involved: _____

Control measures used at time of incident: _____

Personal protective equipment: _____

Description of incident: _____

_____

_____

Witnesses:

_____

_____

INITIAL INVESTIGATION OF
POSSIBLE OVER-EXPOSURE FORM
(Page 2 of 2)

Location of injuries or sites of contact, e.g. eyes, skin: _____

_____

Signs and symptoms developed, if any: _____

_____

Elapsed time for signs and symptoms to develop: _____

_____

Are signs and symptoms the same as indicated on SDS? _____

_____

Conclusions of investigation: _____

_____

_____

_____

Medical examination recommended: _____

_____

Name of Investigator: _____

Signature: _____

Date: _____

NOTE: This information should be provided to the examining physician and returned to the Department Chemical Hygiene Committee.

10.4 HWS PHYSICIAN'S MEDICAL CONSULATION

PHYSICIAN'S WRTTEN OPINION FOR MEDICAL CONSULTATION

Physician's Name: _____

Student's Name: _____

Date of Visit: _____

Description of incident: _____

_____

_____

Results of medical examination and any associated tests: _____

_____

_____

Medical conditions revealed upon examination that may place the employee at increased risk as a result of exposure to a hazardous chemical/agent in his/her workplace:_____

_____

Additional recommended follow-up: _____

_____

Comments: _____

_____

The above referenced student has been informed by me of the results of this consultation and any medical condition that may require further examination or treatment.

_____ _____

Physician's Signature Date

NOTE: This written opinion shall not reveal specific findings of diagnoses unrelated to occupational exposure.

Return to Hobart and William Smith Colleges, Geneva, NY 14456.

10.5 HWS ACCIDENT REPORT FORM

ACCIDENT REPORT FORM

Student Name: _____

Professor Name: _____

Course: _____

Date: _____ Time: _____

Description of Incident:

_____

_____

_____

_____

_____

_____

_____

_____

Chemical(s)/Agent(s) involved:

_____

_____

Physician consulted: Yes No

Corrective measures taken:_____

_____

_____

_____

10.6 HWS LAB INSPECTION FORM

GENERAL LABORATORY INSPECTION FORM

HWS - Laboratory Safety Inspections

Lab/Room#:_____ **Responsible Party:** _____

Date:_____ **Inspector(s):**_____

Safety Equipment	Eye wash/drench hose tested weekly?	YES	NO	N/A
	Safety shower tested weekly?	YES	NO	N/A
	Fire extinguisher present & inspected monthly?	YES	NO	N/A
	Chemical spill kit present?	YES	NO	N/A

Comments:_____

Lab Hoods	Hood clean & organized?	YES	NO	N/A
	Hood free of stored chemicals?	YES	NO	N/A
	Hood currently (w/in 1 year) inspected?	YES	NO	N/A
	Hood motor activates when powered on?	YES	NO	N/A
	Velometer reads 60-120 fpm when open? (N/A if no velometer)	YES	NO	N/A
	Lab hood filters current?	YES	NO	N/A

Comments:_____

Chemical Safety	MSDS/SDSs available (online or paper)?	YES	NO	N/A
	Chemical containers labeled (inc. manufacturer/preparer, date, hazards)?	YES	NO	N/A
	Incompatible chemicals stored separately?	YES	NO	N/A
	Expired chemicals removed?	YES	NO	N/A
	Gas cylinders secured?	YES	NO	N/A

Comments:_____

General Safety	Emergency exits accessible?	YES	NO	N/A
	Emergency procedures posted?	YES	NO	N/A
	Lab contact person posted?	YES	NO	N/A
	Space around oven/furnace free of combustibles?	YES	NO	N/A
	Users obeying general lab safety practices (e.g. closed-toed shoes?)	YES	NO	N/A
	PPE used appropriately?	YES	NO	N/A
	Areas organized/Good housekeeping?	YES	NO	N/A
	Food and drink prohibited where chemicals present?	YES	NO	N/A

Comments:_____

Environmental	Hazardous waste labeled correctly?	YES	NO	N/A
	Hazardous waste moved to designated area when full?	YES	NO	N/A

Comments:_____
_____
_____

For any "NO" responses, please list action(s) taken or to be taken:

_____
_____
_____
_____
_____

Last updated May 24th, 2023

10.7 HWS LISTING OF SOPS

Hobart and William Smith Standard Operating Procedures

TITLE	DEPARTMENT	DATE	REVISION
Acrylamide Safe operating Procedures	All Departments	1/7/14	
Art shop Safety	Arts	3/12/12	
Corrosives Safe Operating Procedures	All Departments	10/13/13	
Cylinder Safety	All Departments	2/11/14	
Dark Room Safety	Arts	3/12/12	
Dry Ice	Chemistry	2/15/12	
Ethidium Bromide Safe Operating Procedures	Biology	1/13/14	
Eye Wash station Checklist	All departments	8/25/13	
Fabrication Shop		3/12/12	
Flammables Gas Safe Operating Procedures	All Departments	10/13/13	
Formaldehyde	Biology	9/21/20	
Glass Welding	Physics	11/15/12	
Compressed gas cylinder safety	All departments	10/15/13	
HF Lab Location	Geosciences, Lansing 109	1/16/17	
HF Safe Operating Procedures	Geoscience	1/13/14	
Hot Work Permit	All Departments	10/11/17	
Ionizing Radiation	Geoscience	7/23/15	
Laboratory Safety Work	B&G	7/8/19	
Laser Safety	Physics/Chemistry	7/24/15	
Liquid Helium	Rosenberg 013	11/17/16	
Liquid Nitrogen	Rosenberg 013	11/17/16	
Machine Shop Safety	Mulitple locations	8/17/15	
Mercury Safe Operating Procedures	Physics	6/22/12	
Mercury Thermometer Cleanup	All Departments	7/4/12	
Methylene Chloride Safe Operating Procedures	Chemistry	1/13/14	

Oxygen Sensor Alarms	All departments	12/3/18
Pallet Jack Inspection form	All Departments	1/18/16
Peroxide Forming Chemicals	Chemistry / Biology	2/26/13
Scaffold inspection	All Departments	7/23/15
Scandling Boat		9/9/15
Safety Operating Procedures	Physics	2/18/19
Sulfur Hexafluoride Safety	Chemistry	8/8/17
TFA Safe Operating Procedures	Chemistry	1/07/14
Theater Operations	Theater	10/12/13
Wood Shop		3/12/12

10.8 CHP REVISION HISTORY

Date	Description of revision	Why	Who
November 2024	Updated the CHP into one main document. Updated department specific sections to be compliant with OSHA regulations	CHP outdated to regulations.	Safety Committee