Lab Supervisory Training

The superior man, when resting in safety, does not forget that danger may come. When in a state of security he does not forget the possibility of ruin. When all is orderly, he does not forget that disorder may come. Thus his person is not endangered, and his States and all their clans are preserved.

- Confucius  Chinese philosopher & reformer (551 BC - 479 BC)

December 2008

Introduction

- **Purpose:** Provide lab staff with guidelines and information needed to safely supervise young lab researchers.
- Young researchers do not come to SBU with the information about specific hazards found in SBU research labs – it is our responsibility to train and guide them on the safe way to reach their scientific goals.
Minors Working in Research Laboratories Policy

**POLICY GOAL:**
Promote safe science and encourage research projects that involve youth from the community.

Needed:
- List of hazardous materials to be used
- Department Approval
- Parent/Guardian Waivers
- Lab SOPs

*June 2008 – this is a draft policy and subject to change.*

SBU Visitor Status Policy

- All volunteers must be at least 14 years old.
- Department administration authorizes volunteer assignment.
- Department sends form: nature of volunteerism, expected duration, campus contact person overseeing volunteer.
- Volunteers receive a University Visitor/Volunteer ID Badge. Volunteers are required to have and wear a University ID Badge.
- Minors in NYS are prohibited from being employed in certain occupations and/or being required to perform certain duties under NYS Department of Labor regulations. Stony Brook University applies these guidelines to volunteers under the age of 18.

http://ws.cc.stonybrook.edu/hr/employmentservices/recruiting/volunteers.shtml
Rules for Precollege Science Research

**REQUIRED:**
- Direct Supervision
- Research Plan
- Risk Assessment
  - List/identify all hazardous chemicals, activities, devices or microorganisms used
  - Identify and assess risks involved
  - Describe safety precautions
  - Describe disposal procedures

*See ISEF web site for rules & forms:*
http://www.societyforscience.org/isef/about/rules_regulations.asp

Responsibilities

*From University Chemical Hygiene Plan:*
Principal Investigators, faculty, and other laboratory supervisors have ultimate responsibility for chemical hygiene in the research or teaching laboratories in which they work. It is their duty to:

- Know and implement the guidelines and procedures of the Chemical Hygiene Plan.
- Write specific operating procedures for handling and disposing of hazardous substances used in their laboratories.
- Train laboratory personnel in these operating procedures and ensure the use of proper control measures.
- Conduct routine inspections of laboratories with their laboratory employees.
- Ensure that all appropriate controls including fume hoods and safety equipment are available and in good working order in their laboratories.
- Ensure that all incidents occurring in their laboratories are reported to the Chemical Hygiene Officer and that a written Incident Report is filed.
- Complete annual inventories of chemicals in their laboratories and provide them to EH&S.
- Ensure laboratory employee access to Material Safety Data Sheets (MSDSs) and update of the “TOP 20”.
- Include provisions for Chemical Hygiene Plan compliance in grant proposals.
Principal Investigator Responsibilities

- Complete list of hazardous materials that will be used by Minor.
- Obtain Parent/Guardian consent form, including Emergency Contacts.
- Obtain authorization for Minor from Department Chair.
- Provide names of Minors, Faculty/PI, Supervisor and lab location to EH&S.
- Ensure written SOPs for lab procedures used by Minor are available.
- Ensure Minor and Supervisor have completed all training before work begins.
- Provide Minor and Supervisor with all required Personal Protective Equipment.
- Ensure Minors are supervised at all times by qualified supervisor.
- Hold Supervisor and Minor accountable for all safety rules.
- Ensure all accidents are reported.

What is Supervision?

Provide continual instruction and oversight of the Minor

HOW?

- Supervisor must be in the lab or adjoining lab or office
- Must be more than 18 years old
- Must be a Graduate Student or above
- Must have an SBU ID
- Must have taken all required EH&S training
Supervisor Responsibilities

- Provide constant, direct supervision of Minor
- Keep area safe from risks and hazards
- Educate Minors on safe techniques
- Communicate clear safety goals and methods of achievement
- Hold Minor accountable for all safety rules and practices
- Complete accident reports
- Provide leadership and direction

Supervisor Safety Leadership

- Set an example for safe behavior
- Promote safety as the right thing to do
- Enforce safe procedures consistently
- Emphasize importance of safe behaviors, good judgment and common sense
- Make safety part of every job and task
- Participate in safety training and developing SOPs
- Always wear your Personal Protective Equipment (PPE)
Supervisor Safety

- Training
  - Complete EH&S classes:
    - Chemical, Biological, Hazardous Waste
  - Provide “On the job training” to Minors
- Use and enforce PPE
- Lead by example
- Hold Minors accountable for safety rules
- Supervisors will be held accountable for following and enforcing safety rules

Hazardous Materials Use

- Prohibit use of Particularly Hazardous Chemicals
  - Acutely Toxic (LD$_{50}$ oral $\leq 50$ mg/kg; LD$_{50}$ contact $\leq 200$ mg/kg or LC$_{50}$ inhalation $\leq 200$ ppm)
  - Reproductive Hazard (Mutagen, Teratogen)
  - Carcinogen (see OSHA, NTP & IARC list)
- Prohibit use of BSL 2 infectious agents
  - Exception: Human cells, tissue, & blood can be used as long as it is not known to be infectious. Use BSL 2 work practices & procedures for handling material.
Hazardous Materials Use

- Radiological Material
  - If Minor is working in an Authorized Space, they must have Radiological Awareness training.
  - Minors may work with Radioactive Material (RAM):
    - PI must request in writing permission from RSO. Request must list specific radioactive material that the Minor will use.
    - Parent/Guardian must sign the specific RAM consent form.
    - Minor must complete the 4 hour Radiation Orientation prior to working with RAM.
    - Dosimetry may be required and is at the discretion of the RSO.

- Prohibited from operating X-ray generating equipment
  - Minors are permitted to observe the equipment being used by an Authorized User. RSO permission and calculation of the potential exposure is required before the Minor is allowed to observe the equipment in use.
  - No contact with nonhuman primates
10 Steps to Lab Safety

1. Understand the Hazards
   - Read all labels
   - Read the Material Safety Data Sheet (MSDS)
   - Conduct a hazard & risk assessment

2. Protect Yourself from These Hazards
   - Always wear proper lab attire when in the lab
   - Always wear nitrile gloves (minimum) when handling chemicals
   - Wear chemical goggles when working with corrosives and safety glasses when handling other chemicals that may splash
   - Always follow all safety rules
10 Steps to Lab Safety

3. Keep Your Exposure As Low As Possible
   - Substitute chemicals with less hazardous chemical
   - Use smallest amount of chemical
   - Keep containers closed and covered

4. Use the Fume Hood
   - Volatile chemicals, flammable material
   - Make sure hood is working properly before beginning work
   - Follow Fume Hood Use Procedures
10 Steps to Lab Safety

5. Keep the Clean, Clean & the Dirty, Dirty
   - Leave Personal Protective Equipment (PPE) in lab
   - Don't touch common items (door knobs, faucets, phone, computer, radio) with gloves
   - Wash your hands often
   - Decontaminate work surfaces at the end of the day

6. Take Required Training
   - Chemical Safety
   - Biological Safety
   - Bloodborne Pathogens
   - Hazardous Waste Disposal
   - Shipping of Dangerous Goods

See schedule: http://www.stonybrook.edu/ehs/training/
Check your SOLAR training records
10 Steps to Lab Safety

7. Store Chemicals Properly
   - Label all containers with name of chemical
   - Segregate chemicals by hazards
   - Always use secondary containment
   - Do not store flammables in a domestic refrigerator

8. Dispose of Chemicals Properly
   - Do not put hazardous chemicals down the drain
   - Do not use squirt bottles over sink
   - Use Hazardous Waste Labels
   - Do not mix waste types
   - Do not allow hazardous waste to accumulate
10 Steps to Lab Safety

9. Know Where the Emergency Equipment Is & How to Use It
   - Eyewash, shower, fire extinguisher, spill kit
   - Have a plan to shut down lab processes and exit the building during an alarm

10. Report All Accidents

Reporting

- Report in writing all near misses and accidents to PI!
- All injured students must receive medical attention.
- Exposures to hazardous materials must be reported.
Potential Hazards

Immediately address unsafe conditions and unsafe behaviors!

- Potential hazards that could cause injury:
  - Unsafe conditions
  - Unsafe equipment
  - Unsafe use of equipment
  - Unsafe acts or behavior by Minor

Potential Hazards

Examples:
- Faulty electrical cords
- Blocked exit, eyewash or shower
- Fume hood not working
- Minors not following proper procedures
Potential Hazards

Unsafe Materials or Equipment:
- Defective equipment
- Wrong equipment for task
- Proper equipment not available
- Altering equipment from manufacturers’ intended use
- SOP or equipment instructions not followed
- Not trained in proper use of equipment

Accident Report

*Fill out Student Accident/Injury Form as soon as possible!*

- Detailed incident description
- Specific body part
- Specific injury
- Include equipment involved
- Primary & contributing causes

*You can contact EH&S for assistance in completing form!*
**Accident Follow-up**

**GOAL: Prevent accident from happening again!**
- Remove – *dangerous situation*
- Repair – *equipment, process*
- Replace – *damaged equipment*
- Retrain – *on-the-job training*
- Review – *update and correct SOPs*
- Assign responsibility and timeline for corrective actions

**Reinforce Safe Behavior**
- Positive reinforcement of safe behavior
- Set a good example – “Walk the Talk”  
  - Actions speak louder than words
  - Always follow all safety rules yourself
- Behavior accounts for ~90% of all injuries:
  - Lack of required skill, knowledge, or training
  - In a hurry, using shortcuts
  - Not paying attention
  - Not following procedures
  - Creating a hazardous situation for others
  - Poor direction or supervision
  - Not being held accountable
  - Not addressing near misses
The superior man, when resting in safety, does not forget that danger may come. When in a state of security he does not forget the possibility of ruin. When all is orderly, he does not forget that disorder may come.

Safe science takes practice!

*Not a direct quote.*