LABORATORY INSPECTION GUIDANCE DOCUMENT

GENERAL ADMINISTRATIVE

1. Doors should be posted with faculty members’ name and office or home phone number for emergency contact. Postdoctoral fellows’ and graduate students' names and numbers should also be available. This will be incorporated into the University signage program if buildings are newly built or renovated.

2. Laboratory members should not be allowed to work by themselves after hours when doing laboratory work involving any hazards. University policy prohibits solitary work when dealing with hydrofluoric acid.

3. Windows on laboratory doors should not be covered. Doors with windows should be clear to allow passersby to note any dangerous events or trouble in the lab.

4. Children should not be allowed in the laboratory.

5. Laboratories should have a chemical inventory established (updated annually) and keep a binder or electronic inventory of Material Safety Data Sheets (MSDSs) for these materials in the lab.

6. All members of the lab must be trained in the Workplace Hazardous Materials Information System (WHMIS) level 2 (for direct users of chemical or biological agents). This includes faculty members. WHMIS training is provided by the Department of Occupational Health and Safety (DOHS).

7. Job Hazard Analysis/Personal Protective Equipment designations must be available for the lab personnel to reference.

8. Personal protective equipment (PPE) must be made available to all lab employees at no charge. Designated PPE must be worn. Students must be told that they are required to purchase and wear those items.

9. Smoking, eating, drinking, and the application of cosmetics are prohibited in University laboratories.

10. Laboratory members should know the procedures to follow for a laboratory accident or emergency. That is, to evacuate areas as needed, to dial 911 in life-threatening situations and/or 33333 in other situations, to access emergency equipment (e.g., fire extinguishers, deluge showers, eyewash stations, etc.), to provide first aid (if currently trained to do so) or to access first aid kits, to complete accident report forms with their supervisors, etc.
11. Laboratory safety protocol reviews should be conducted on all laboratory procedures and whenever there is a change in procedure or a new procedure or apparatus added.

12. All laboratories/areas where hazardous materials (e.g. chemicals, biohazardous materials, radioactive materials etc.) are used, must complete a Lab Door Poster. The poster, placed on the outside lab door can be obtained from Area HSO or DOHS.

**ELECTRICAL**

1. Adequate electrical service is necessary in the lab to avoid the use of unsafe practices such as permanent use of extension cords.

2. Circuit breakers that service laboratory equipment should be identified as such.

3. Outlets located near sinks or other sources of water should be on a ground fault circuit interrupter (GFCI) or otherwise ground fault protected.

4. Extension cords are allowed for temporary use provided the weight of the cord is adequate for the load applied. Check to be sure the extension cord is three pronged and that no cords are frayed.

5. Multiplug devices are allowed provided they are UL (Underwriters Laboratories) listed with a built-in circuit breaker and used in accordance with their intended use.

**GENERAL SAFETY**

1. Housekeeping must be maintained so that the aisles are clear to allow for emergency egress. A person should be able to exit the lab quickly without tripping over moveable or permanently located objects. Storage is not permitted in exit ways (hallways).

2. Floors should be in good repair (i.e., no tripping hazards caused by cracks, holes, protrusions, missing tiles, etc.).

3. Excess or surplus equipment should be disposed of or relocated to a storage location. When transferring equipment for disposal, be sure hazardous materials are removed prior to transfer.

4. Hot surfaces or equipment should be posted with an appropriate warning sign.

5. Laboratory refrigerators and freezers are not to be used for the storage of food or drink. Ice machines and microwave ovens are not to be used for food or beverages.
6. Safety showers and eyewash stations should be located in the lab or nearby. They should be kept accessible at all times. They should bear a tag indicating an inspection within the last six months by Facilities personnel. Lab occupants should test eyewash stations weekly.

7. Caution should be taken to prevent contamination of the potable water supply. Hoses connected to sink faucets should not extend below the plane of the sink surface or back flow preventers should be installed.

8. The location of the nearest first aid station and nearest currently trained first aiders should be posted within the laboratory.

9. Needles and/or syringes must be kept secured at all times. They should be kept in a locked drawer or cabinet or in a locked laboratory and under surveillance of lab personnel when the lab is unlocked.

**FIRE SAFETY CONCERNS**

1. Fire extinguishers should be located nearby and visible from the hallway. They should be inspected monthly and bear two tags: one indicating the monthly University inspection and the other indicating the date of the last annual maintenance. Check to make sure the extinguisher is charged and is not damaged.

2. If there are smoke detectors or sprinklers in the lab, make sure that nothing is stored near them that would interfere with their intended operation. No storage within 18 inches of sprinkler heads.

3. Check for storage of combustibles near any hot surfaces or equipment.

4. If drying operations are performed in the lab, procedures should be written and posted for their safe operation (i.e., students should be instructed not to use combustible trays for holding materials to be dried, etc.).

5. All fires must be reported to the Fire Marshal's office even if they are extinguished without incident.

**CHEMICAL CONCERNS**

1. Spill kits should be readily available during the hours of operation of the laboratory. They must be kept stocked at all times.

2. Chemicals need to be stored by hazard class, not alphabetically (i.e., dangerously reactive materials, flammables, poisons, oxidizers, corrosives, etc.). Chemicals should be removed via the hazardous waste program before the expiration date is
reached. Pay close attention to special storage requirements such as refrigeration, dry atmospheres created by desiccants, inert atmospheres, etc.

3. Flammable/combustibles may not be stored in refrigerators or freezers that are not lab safe or explosion proof. Regular refrigerators and freezers should bear the caution statement prohibiting storage of these materials.

4. All chemical containers must be labeled and the labels must be securely affixed to the container. Reaction flasks must be labeled as well. Abbreviations or trade names should not be used to label containers. Common chemical or IUPAC (International Union of Pure and Applied Chemistry) nomenclature should be used.

5. Quantities of chemicals kept in the lab should not be excessive. Outdated chemicals should be disposed of properly.

6. Flammables should be stored in flammable storage cabinets wherever possible and always kept away from open flames.

7. Whenever possible, chemicals should not be stored above eye level and liquids should be stored in secondary containers.

8. Whenever possible, all shelves used to store liquid chemicals should have a lip.

WASTE MANAGEMENT

1. Wastes should be removed from the laboratory in a timely manner.

2. All wastes must be labeled with a hazardous waste label and stored according to the hazards associated with the waste. Abbreviations or trade names must not be used to identify contents. Common chemical or IUPAC nomenclature must be used. Label every constituent added to the container, especially with heavy metals in the parts per million range. Unknowns are forbidden and, if discovered, will be disposed of at the department's expense.

3. Waste containers must be capped at all times unless material is being added.

4. Waste containers must be compatible with contents. For example, do not use metal containers to store acids or glass containers for hydrofluoric acid mixtures.

5. All waste must be stored in a secondary container.

6. Do not fill liquid waste containers over 90% full.

PHYSICAL/ENVIRONMENTAL
1. Laboratory lighting should be adequate for the tasks being performed. Special task lights may need to be provided.

2. Some operations or equipment may produce noise at a level of concern. Contact DOHS if any noise assessment is needed.

3. All belts, blades or other moving parts on equipment should be guarded or otherwise protected.

4. If operations cause floors to be wet or slippery, mats to help prevent slippage should be used.

5. Check for sharp edges or points sticking out on equipment, furniture, etc. that could cause hazards.

6. Shields should be used when conducting experiments that could explode.

7. All lab equipment should be clean and in good working order.

**PERSONAL PROTECTIVE EQUIPMENT**

1. In general, proper lab attire should consist of safety glasses, lab coats, gloves, and closed-toed shoes. Sandals and shorts/short skirts are not appropriate for the lab.

2. Departments are responsible for providing PPE to employees at no charge. Students may be required to obtain their own PPE.

3. Safety glasses are mandatory in all University laboratories except laboratories used exclusively for computers.

4. PPE contaminated with chemicals must be disposed of as chemical waste.

**VENTILATION**

1. If operations in the lab involve chemicals that present an inhalation exposure hazard, a fume hood must be available for use.

2. Fume hood work should be placed approximately six inches into the hood (i.e., not right at the front edge). Fume hoods should not be used for long term storage of chemicals.

3. Biosafety cabinets should not be used in place of a fume hood. These cabinets should hold a certification issued within the last year. Check to be sure the cabinet is free from clutter.
COMPRESSED GASES

1. Gas cylinder users should be trained on compressed gas cylinder safety. This training, organized by DOHS, is held approximately 3 times a year.

2. Gas cylinders should not be stored in laboratories unless they are being used.

3. Caps should be kept on the cylinders when not in use.

4. Cylinders need to be individually secured by chains at approximately two-thirds height from the floor.

5. Regulators should be replaced or re-certified on a regular basis. Regulator types are matched to the type of cylinder and gas being used. Contact the gas supplier with questions.

6. Gas cylinders must be labeled with the contents. Unknown gas cylinders are very hazardous and expensive to dispose of.

7. Gas supply lines need to be compatible with the gas being used. The suppliers can provide information about proper line material. The lines also must be rated to handle the pressures used.

8. Some gas companies will accept their cylinders back empty or partially full. Companies such as this should be used to minimize chemical waste.