Establishing a General Research Laboratory

All IME undergrads, grad students, postdocs, and research staff are required to complete several training courses before they can begin working in a laboratory setting.

1) Hazard Identification
2) Safety Glasses, Lab Coats, and other PPE
3) Chemical Inventory, Storage, and Waste Disposal
4) IME Safety Contact Information
5) Requesting Building Access
6) Eyewashes and Safety Showers
7) Chemical Hygiene Plan and Standard Operating Procedures
8) Building Alarm Systems/Emergency Power
9) Emergency Procedures
10) Undergraduate Researchers
11) Research Facilities on Campus
12) On-Campus Stockrooms and Purchasing

Hazard Identification:

There are four main classifications of laboratory-based hazards and safety that must be addressed separately: (i) general laboratory safety, (ii) biological safety, (iii) laser safety, and (iv) radiation safety. This document summarizes the concerns associated with general laboratory safety and the guidelines provided here apply to all types of laboratories unless additional more stringent requirements apply when working with those hazards. Additional information on biological, laser, and radiation safety can be found at (http://safety.uchicago.edu/, http://biologicalsafety.uchicago.edu/, and http://safety.uchicago.edu/pp/laser/program.shtml). A wide range of safety-related forms are also available online (http://safety.uchicago.edu/tools/forms.shtml).

Laboratory Safety Contact: Each lab is expected to designate a Laboratory Safety Contact. This person will serve as a liaison between the group, the Principle Investigator, and UChicago Safety personnel. Laboratory Safety Contacts are required to take specific training. More information on Laboratory Safety Contact responsibilities can be found online (http://safety.uchicago.edu/files/Lab%20Safety%20Contact%20Responsibilities.pdf).

Lab Safety Placards: The University requires a visual posting of laboratory hazards on a Lab Safety Placard located outside of each entrance to a lab. These placards must be kept up to date and are obtained by filling out and submitting a Placard Request Form to the Environmental Health and Safety Office. A copy of this form is available online (http://ime.uchicago.edu/about/resources/safety/laboratory_safety_and_training/).

Specific Chemical Hazards: It is important to identify the various chemical and laboratory hazards that are present in your lab. Examples of specific hazards include poisons, toxins, cryogens, oxidizes, acids, poisonous gases, lasers, and biological hazards. For help in identifying laboratory hazards contact EHS at safety@uchicago.edu.

Laboratory Safety Inspections: A representative from Environmental Health and Safety will perform an annual inspection of all lab spaces. Following this inspection the report will be sent to the Principle Investigator and/or the Laboratory Safety Coordinator, including a list of action items that must be addressed. More information on lab inspections can be found online (http://safety.uchicago.edu/pp/labsafety/reviews.shtml).

Researchers are encouraged to inspect their own lab spaces regularly. A laboratory self review questionnaire is available online and can be used to check for safety compliance at any time (http://safety.uchicago.edu/files/Laboratory%20Self%20Review.pdf).

University Police: 123 (on-campus phone); 773-702-8181 (off-campus phone)
City of Chicago Police/Fire/Emergency Medical Services: 911
University of Chicago Environmental Health and Safety Office: 773-702-9999, safety@uchicago.edu
Safety Glasses, Lab Coats, and other PPE:

IME lab coats can be obtained by contacting the IME administrative staff in Jones 222. Please determine whether a standard lab coat or a flame retardant one is necessary for your work. Lab coat cleaning can be performed using Doctors Laundry Service (773-836-4677). Orders can be processed through BuySite. Typical cost is $2.49 per lab coat with pickup on Monday and return the following Monday.

Prescription safety glasses will be provided at no cost to all IME faculty, staff, post-docs, graduate students, as well as qualifying undergraduate researchers (after a vetting period of 3 months). Safety glasses can be ordered and fitted using the Eyelation station in place in the GCIS Fisher Stockroom (GCIS W143). Personnel must bring their current prescription information and fitting will be done through the automated system. For researchers performing work in a wet chemical lab, only a limited number of appropriate styles will be available. Detailed instructions are available online (http://ime.uchicago.edu/about/resources/safety/laboratory_safety_and_training/). For more information, contact the IME administrative staff in Jones 222.

All researchers are required to wear safety glasses while in lab. This requirement includes separate instrumentation, characterization, or cell culture rooms. Each lab space should have a safety glasses holder at or before entry into the lab, including extra safety glasses for visitors. Specific PPE requirements for more hazardous procedures are covered in SOPs.

The IME is also participating in a glove recycling program. We are able to recycle clean (i.e., gloves that are not contaminated and do not belong in chemical waste), Kimberly-Clark purple and lavender nitrile gloves. Gloves should be collected in a separate container in the lab and can be accumulated in a larger container located in the Searle loading dock. Gloves will be collected until an entire pallet has been accumulated. This pallet is then sent back to Kimberly-Clark for recycling.

Chemical Inventory, Storage, and Waste Disposal:

UChicago utilizes an online system for inventory tracking and chemical waste disposal. To setup an account for your lab fill out the access request form online (http://safety.uchicago.edu/tools/ehsaccess.shtml).

Detailed information about maintaining a laboratory-specific chemical inventory can be found online (http://safety.uchicago.edu/pp/labsafety/chemical_inventories.shtml).

The University of Chicago currently maintains a campus-wide inventory program that all IME labs must use to catalogue commercial chemicals (link). Solvents that are regularly used and replaced, but whose amount stored in lab is generally in a steady state, can be added once to the inventory. Compounds made by IME personnel do not have to be catalogued, though compounds made in large amounts (>20 g) or which have known physical or biological hazards should be properly catalogued.

A summary of hazardous materials management can be found online at (http://safety.uchicago.edu/pp/labsafety/hazmat.shtml). Briefly, chemical waste must always be kept in secondary containment, and must be clearly labeled as “Hazardous Waste” with a list of contents. It is very important to separate incompatible types of chemical waste. The university provides buckets for the disposal of aqueous waste, organic solvent waste, and solid waste. Strong acids, bases and oxidizing agents must be disposed of into separate containers, as must individual toxins or poisons. Volatile waste such as organic solvents should be stored in fume hood at all times. Additionally, waste containers must be kept closed when not adding waste. Take care, however, that waste containers not become pressurized. If a container appears to be pressurizing, allow it to vent in a fume hood.

Waste containers should no more than 95% full, and should stay in the lab for no more than 6 months from the day the waste container is started. Waste containers must be marked to identify the contents, hazards, and accumulation start and end dates. To request waste pickup, log-on to the EH&S Assistant (http://ehs.uchicago.edu/ehsweb/ehswebasisapi.dll/EXEC). Please contact the Safety Office at 2-9999 if you have questions about a specific type of waste.

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City of Chicago Police/Fire/Emergency Medical Services: 911
University of Chicago Environmental Health and Safety Office: 773-702-9999, safety@uchicago.edu
**IME Safety Contact Information:**

- Sharon Feng, IME Executive Director, Phone: 773-702-9957, sfeng@uchicago.edu
- Mercedes Burgos, IME Project Manager/Human Resources: 773-834-3548, mercedes@uchicago.edu
- Chelcia Kennedy, Administrative Assistant, Phone: 773-834-2351, chelcia@uchicago.edu

**Searle Laboratory, Jones Laboratory, and Kent Chemical Laboratory:**

- Mike Reedy, Building Manager, Phone: 773-702-7053, mreedy@uchicago.edu
- Alex Lukich and Kurt Krygowski, Building Engineers, Phone: 773-834-1425, Facilities Order Desk Phone: 773-834-1414, (recommend leaving a note on the door of Jones 7)

**Building Industrial Hygienists:**

- Tom Tucker (Searle, Jones), Phone: 773-702-2720, tomt@uchicago.edu
- Doug Farmer (Eckhardt Center), Phone: 773-834-1130, Mobile: 773-612-0444, dfarmer2@uchicago.edu

**Facilities and Services:**

- Andy Cobb, Supervisor, Phone: 773-834-1428, Mobile: 773-612-5316, acobb@uchicago.edu

**IME Research Groups and Safety Officers:**

- Awschalom: Will Koehl, Jones 010, Office: 773-795-1440, koehl@uchicago.edu
- de Pablo: Johnny Alfaro-Perez, Searle 407, Office: 773-834-2912, alfaro@uchicago.edu
- Nealey: Christopher Arges, Searle 407/417, Office/Lab: 773-702-3181, carges@uchicago.edu
- Tirrell: John Barrett, Searle 19-23, Office: 773-702-7063, Lab: 773-702-7061, jcbarrett@uchicago.edu

**Requesting Building Access:**

For building access, please contact Mercedes Burgos, IME Project Manager/Human Resources, Phone: 773-834-3548, mercedes@uchicago.edu. You will need to provide a scanned copy of both sides of your UChicago ID card in order to request building access.

**Eyewashes and Safety Showers:**

Showers and eyewash stations must be clearly marked. All eyewash stations must be run weekly to ensure a clean and clear flow of tepid water. A physical log tracking these tests must be maintained.

**Chemical Hygiene Plan and Standard Operating Procedures:**

The University’s Chemical Hygiene Plan can be found online: http://safety.uchicago.edu/pp/labsafety/hygiene.shtml

Each lab is required to retain a copy of the University’s Chemical Hygiene Plan in the laboratory for immediate use by employees. Each lab is also required to establish and maintain laboratory-specific standard operating procedures (SOPs). The UChicago Safety Officers and Industrial Hygienists are available to assist in developing laboratory-specific SOPs. IME has developed general SOPs that apply to all IME labs.
General IME Standard Operating Procedures:

All IME laboratories should have a safety glasses holder inside the entrance of each lab, with glasses available for all lab personnel and visitors. All refrigerators must be labeled that food/drink storage is prohibited. If refrigerators will store flammable chemicals, they must be de-sparked (i.e., intended for flammable storage). Strong acids and bases must be stored (separately) in appropriate areas, such as vented cabinets beneath hoods. Short, reference SOPs have been written for more hazardous procedures, including the use of piranha, HF, caustic bath, high vacuum protocol and compressed gas cylinders. However, these documents are designed only for quick reference. For more complete information please visit http://safety.uchicago.edu.

Building Alarm Systems and Emergency Power:

Equipment alarms can be integrated in the campus building alarm system (BAS). These alarms can be configured to contact specific people (via email) to alert them to the alarm.

A limited number of connections to the emergency power system for the building are available. Red electrical outlets designate these connections. However, care should be taken not to overload an individual circuit.

Emergency Procedures:

In the event of an emergency, contact the University of Chicago Police by dialing 123 from a campus-phone or 773-702-8181 from an off-campus phone. The University Police will then notify the “on-call” safety officer.

Chemical Spills: Information on dealing with chemical spills is available online (http://safety.uchicago.edu/guides/chem_spill.shtml). Do not attempt to clean up a chemical spill if any of the following conditions apply:

- More than one chemical has spilled
- The spill is greater than 1 L
- The chemical is classified as a toxin or poison
- The chemical is highly flammable or explosive
- The substance is unknown or you are uncertain of the hazards
- A secondary emergency situation (e.g., a fire) exists
- You are uncomfortable with the situation

Infectious Agent Spills: Information on dealing with spills involving infectious agents is available online (http://safety.uchicago.edu/guides/infectious_agent.shtml). Do not attempt to clean up such a spill if any of the following conditions apply:

- The spill involves an unknown agent
- The agent is an inhalation hazard
- The spill is greater than 1 L

Undergraduate Researchers:

All undergraduates must complete university training courses before beginning work in the lab, as well as an in-person training of the specific hazards in the laboratory where they will work. Undergraduates cannot work in the laboratory unsupervised under any circumstance.

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Research Facilities on Campus:

Below are links to various listings of the core facilities available on campus:

- BSD Shared Research Facilities
  [http://wwwbsdpostdocuchicagoedu/being-facilities.shtml](http://wwwbsdpostdocuchicagoedu/being-facilities.shtml)

- Comprehensive Cancer Center Core Facilities
  [http://canceruchicagoedu/research/core-facilities/](http://canceruchicagoedu/research/core-facilities/)

- PSD Shared Research Facilities
  [http://psduchicagoedu/about/facilities.shtml](http://psduchicagoedu/about/facilities.shtml)

Here are additional specific listings of facilities that IME users have recommended:

- NMR: Searle E340F, Antoni Jurkiewicz, Phone: 773-834-7420, [ajurkiew@uchicagoedu](mailto:ajurkiew@uchicagoedu)
  [http://chem-nmr.uchicago.edu/](http://chem-nmr.uchicago.edu/)

- Mass Spectrometry (MALDI or ESI): C. Jin Qin, Phone: 773-834-8905, [changqin@uchicagoedu](mailto:changqin@uchicagoedu)
  [http://chemistry.uchicago.edu/page/facilities.html#spectro](http://chemistry.uchicago.edu/page/facilities.html#spectro)

- Materials Preparation and Measurement Laboratory (SEM, TEM, AFM, zeta potential, DSC, TGA, etc): Qiti Guo, Phone: [q-guo@uchicagoedu](mailto:q-guo@uchicagoedu), Phone: 773-702-7811

- Biophysics Core Facility (ITC, CD, SPR, Fluorescence, etc): GCIS W102, Elena Solomaha, Phone: 773-702-5508, [elena@bsd.uchicago.edu](mailto:elena@bsd.uchicago.edu)
  [http://biophy.uchicago.edu/](http://biophy.uchicago.edu/)

- Institute for Biophysical Dynamics Nanobiology Facility (Fluorescence Microscopy, AFM, CARS): GCIS ESB18, Justin Jureller, Phone: 773-834-3864, [jureller@uchicago.edu](mailto:jureller@uchicago.edu)
  [http://nanobio.uchicago.edu/](http://nanobio.uchicago.edu/)

- Integrated Microscopy Core Facility (Confocal and Fluorescence Microscopy, TIRF): KCBD 1250, Vytas Bindokas, Phone: 773-702-4875, [vbindoka@bsd.uchicago.edu](mailto:vbindoka@bsd.uchicago.edu)
  [http://digitalbsd.uchicagoedu/](http://digitalbsd.uchicagoedu/)

- James Franck Institute Electronics Laboratory: GCIS ESB03, Phone: 773-702-7220

- Machine Shop: Phone: 773-702-7247 (Central Shop), 773-702-7576 (Student Shop)
  [http://chemistry.uchicago.edu/page/facilities.html#machine](http://chemistry.uchicago.edu/page/facilities.html#machine)

- PSD Graphic Arts: John Crerar Library 008, Phone: 773-702-3800
  [http://psdgraphicarts.uchicago.edu/](http://psdgraphicarts.uchicago.edu/)
On-Campus Stockrooms and Purchasing:

Purchasing at the University of Chicago is typically handled through BuySite:
[https://solutions.sciquest.com/apps/Router/Login?OrgName=UChicago](https://solutions.sciquest.com/apps/Router/Login?OrgName=UChicago)

There are two stockrooms on campus:

- The Chemistry Fisher Storeroom is located on the 1st floor of Searle. Items can be purchased either before arrival or at the stockroom through BuySite.
- At the GCIS Fisher Stockroom in GCIS W143, the Fisher portion of the inventory is processed through BuySite. However, the PSD portion of the inventory is purchased by filling out separate paperwork.

Gas cylinders and/or liquid nitrogen dewars can be ordered by emailing orders@cylinder-gas.uchicago.edu, and will be delivered to the Searle loading dock. Keys for the dock can be obtained from Mike Reedy (mreedy@uchicago.edu). Be careful not to get locked inside the dock by letting the door to the dock close while you are inside.

General deliveries and other packages will be delivered directly to the labs, typically by 2pm.

Other Consumables:

- Ice for laboratory use is available free of charge on the 3rd floor of Searle near the elevator.
- Liquid nitrogen is also available in a dewar on the 3rd floor of Searle near the elevator; log sheet is adjacent.
- Dry ice is available in a large blue container located on both the 3rd floor of Searle and the 4th floor of Jones; log sheet is on adjacent wall.