



# IMSERC

Integrated Molecular Structure  
Education + Research Center

General Introduction and Safety Training

Northwestern



# Northwestern University



IMSERC's mission is to further research at Northwestern by providing access to and educating students on the proper use of instrumentation needed for molecular structure characterization. The Northwestern University Integrated Molecular Structure Education and Research Center (IMSERC) has been established to educate Northwestern students to be scientific leaders of the 21st century, and to support world-class research. The synthesis of small molecules fuels research of numerous core disciplines and interdisciplinary activities, including chemistry, molecular/cellular biology, drug discovery, chemical biology, translational medical research, materials, catalysis, nanotechnology and energy storage/conversion. All research at Northwestern utilizing novel compounds relies on IMSERC to characterize these molecules before application testing can begin. As a "one stop shop" for molecular structure characterization, all instrumentation and staff scientist offices are located in a single location.

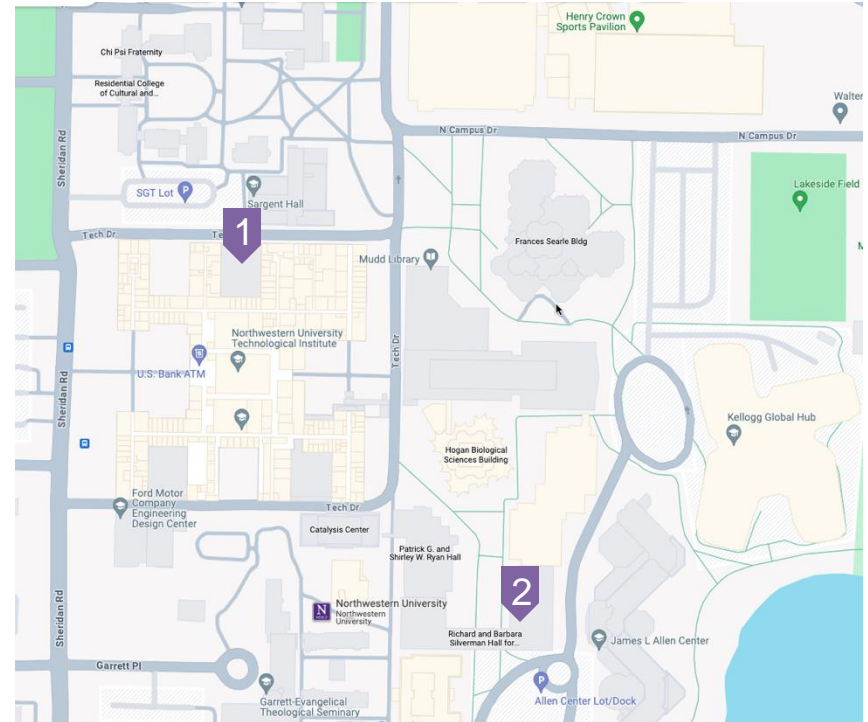
# IMSERC Training Guide



- Finding IMSERC
- Safety Policies
- General Policies
- Instrument Training

# IMSERC Location

1. Ground and First floors in B-wing in Technological Institute (Tech):
  - 2145 Sheridan Rd (BG50-B190)
2. Basement of East Wing of Silverman Hall:
  - 2170 Campus Drive (B530)



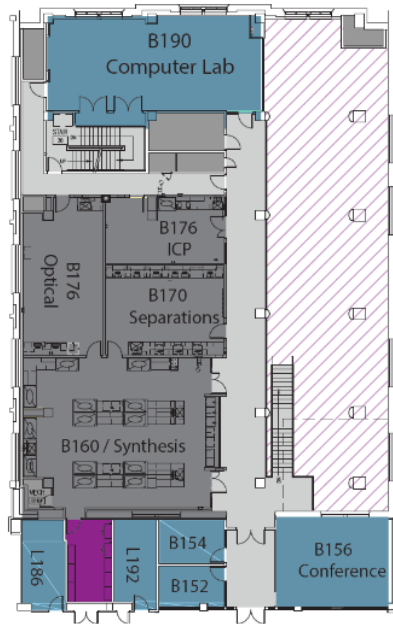
# Tech IMSERC Map

Ground Floor

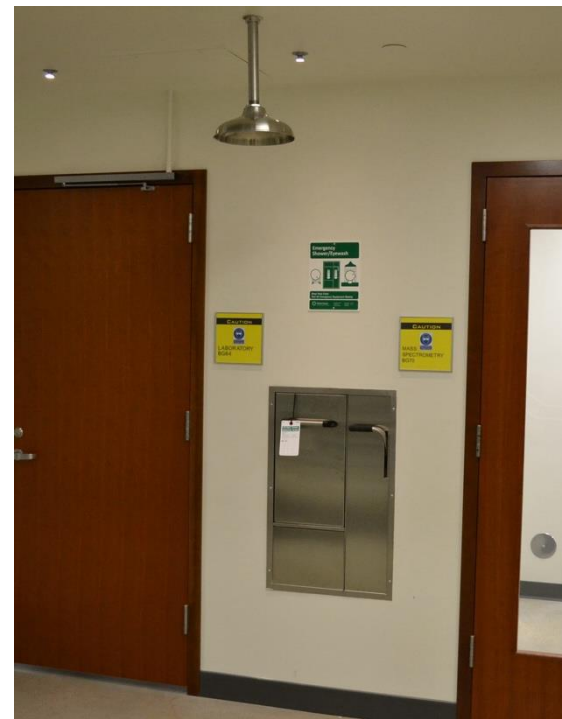


Corridor Office Space  
No Open Chemicals

First Floor



Laboratory Space Obey Signage Staff Only



# General Safety Policies

- IMSERC policies are set by Office for Research Safety (ORS) based on what experiments may be performed in the area
- Users who violate these safety policies will have their privileges revoked.
- User is responsible to dress appropriately for laboratory work.
  - Cover unprotected skin whenever possible (**Inappropriate examples**: shorts, sleeveless tops and exposed midriffs).
  - Wear substantial closed-toed shoes (**Inappropriate examples**: sandals, cloth shoes, perforated shoes, or open-toed shoes).
- ANSI-approved safety glasses are required when working with any open containers.
- No open containers allowed in NMR area.
- No gloves are permitted while using computers or in public areas (e.g., opening doors)
  - Only use gloves when actively handling samples and dispose of properly when complete.
- Users must retrieve samples promptly and dispose of them in their own labs.
  - Only exception is MS samples which are very dilute and can be disposed of as solvent.
  - Unlabeled samples left in lab will be disposed of immediately as unknown waste.

# NMR Room (BG70) Safety

- Entrances to NMR lab are posted as areas with high magnetic fields
  - People with pacemakers should not enter into this area
- 5 Gauss (5G) lines are marked around each magnet
  - Fields are strong enough to attract ferromagnetic objects and erase magnetic strips on credit cards
  - Pay special attention when working directly over/under magnets
  - Field lines marked with yellow and black tape on floor.
- Cryogenics are present throughout the NMR lab
  - Alarms in place to notify users of low oxygen levels in case of a magnet quench



# Other Key Policies

- Broken samples / spills
- Equipment issues
- Area cleanliness
- Computing Policies
- Accessing instrumentation



# Other Key Policies

- **Broken samples / spills**
  - Notify a staff person (even if you clean the spill yourself)
  - Cleaning supplies are located under the sink in the MS lab (BG70)
  - Dispose of hazardous waste and sharps in the appropriate locations
- Equipment issues
- Area cleanliness
- Computing Policies
- Accessing instrumentation



# Other Key Policies

- Broken samples / spills
- **Equipment issues**
  - Report all equipment issues to IMSERC staff
  - For emergencies (sample stuck, solvent leaks or when equipment operation poses a safety risk / danger to the equipment), place a stop sign at the instrument)
  - Stop signs located off the shelf next to the login computer and can be printed from the IMSERC website
- Area cleanliness
- Computing Policies
- Accessing instrumentation

The form is titled "Equipment Issues" and features a cartoon character holding a red stop sign. The character is a yellow circle with a grumpy expression, blue eyes, and a small blue cloud above its head. The stop sign is red with the word "STOP" in white. Below the character, there are several lines for text entry, each with a label and a blank line for the answer. The labels are: "First person observing problem:", "Best Method to contact:", "Instrument:", "Safety Concerns:", "Problem:", "Staff Member Contacted (Name):", and "Contact Method (call first!:". There are also two "Date:" labels, one on the right side and one at the bottom right labeled "ETU:".

First person observing problem: \_\_\_\_\_  
Best Method to contact: \_\_\_\_\_  
Instrument: \_\_\_\_\_ Date: \_\_\_\_\_  
Safety Concerns: \_\_\_\_\_  
Problem: \_\_\_\_\_  
Staff Member Contacted (Name): \_\_\_\_\_  
Contact Method (call first!): \_\_\_\_\_ ETU: \_\_\_\_\_

# Other Key Policies

- Broken samples / spills
- Equipment issues
- **Area cleanliness**
  - Samples and preparation equipment must be labeled with owner and contact information.
  - Samples must be removed immediately after experiments are complete.
  - MS samples may be left and disposed of as solvent waste.
  - Unattended / unlabeled samples will be disposed of as unknown waste.
  - In cases of sample spills, the last user will be required to clean up the area
  - Report spills you encounter immediately
- Computing Policies
- Accessing instrumentation



# Other Key Policies

- Broken samples / spills
- Equipment issues
- Area cleanliness
- **Computing Policies**
  - Instrument computers are to be used for data collection and processing only
  - No internet or gaming allowed on IMSERC instrument computers, including email
  - Only exception is using the ICSD and ReciprocalNet for unit cell searches on X-Ray computers
  - Use of thumb drives is limited to instruments in login area and microscope computer
  - Use IMSERC approved network shares and access data from your own computer or computers in the login area
  - Do not unplug Ethernet cables from instruments
  - IMSERC has NU WiFi throughout the lab for your personal computing connectivity
- **Accessing instrumentation**



# Other Key Policies

- Broken samples / spills
- Equipment issues
- Area cleanliness
- Computing Policies
- **Accessing instrumentation**
  - You may only use instrumentation with your own login credentials and are responsible for any issues that occur while logged in
  - Training is complete only when you receive access in NUCore / login information for the instrument



# Instrument Training

- Must ***first*** complete this IMSERC intake request and have a valid NUcore account with active payment source (<https://nucore.northwestern.edu/facilities>)
- Be prepared to use the instrument again within a month of your training session.
- Have your own sample and questions ready when you arrive for training.
- To request training on specific instruments, go to IMSERC website training page. Instructions for requesting training are centralized therein.
- For more information, email [IMSERC-ofc@northwestern.edu](mailto:IMSERC-ofc@northwestern.edu).