Lab safety orientation

BIOS 1006

16 June 2025

General safety

Rights and responsibilities

Rights of the researcher

- To understand hazards
- To work in a safe environment
- To relevant safety training
- To medical consultation
- To Personal Protective Equipment (PPE)
- To file complaint

Responsibilities of the researcher

- Following all safety rules
- Obtaining all required safety trainings
- Maintaining a safe work environment
- Notifying supervisor of unsafe work conditions or suspicious activity
- Reporting all injuries and accidents

Common hazards

- Slips, trips, and falls
- Electrical
- High temperature
- Sharps
- Biohazards
- Chemicals

Slips, trips, and falls Comprise the majority of work-related incidents. Can be prevented with good housekeeping, proper storage, cleaning spills immediately, and not climbing on benchtops or chairs.

High temperature Including Bunsen burners and hot plates. Hot and cold items look alike. Do not leave unattended.

Sharps Different types of sharps can be found in a lab, such as needles. Dispose properly and do not recap needles.

Biohazards Hazards derived from living things. This can include microbial pathogens (bacteria, viruses, fungi, etc.), material derived from humans (blood, tissues, cells, etc.), and recombinant DNA (CRISPR, GFP, antibiotic-resistant plasmids, etc.).

Safety equipment

- Hand wash sink
- Eye wash station
- Safety shower
- First-aid kit
- Spill kit
- Fire extinguishers

Biosafety

Risk groups for biologicals (RGs)

RG1

- Not associated with disease in healthy adults
- Many are beneficial (probiotics, microbiome) – Food fermentation (bread, cheese, etc)
- Cells from plants and animals (not human)

RG2

- Cause diseases in healthy adults, but usually not serious/fatal and can be treated
- Bacteria, viruses such as *Salmonella*, pathogenic *E. coli*
- Any human-derived material
- Culturing unknown samples from the environment

RG3

- Cause serious/fatal disease in healthy adults, but can often be treated or fatality rate is low
- One BSL-3 lab in Hyde Park (TB)
- Examples: anthrax, bubonic plague, TB, high pathogenicity

RG4

- Serious/fatal disease
- Ebola, Marburg Virus, other hemorrhagic fever viruses

Important!

- Do not dispose of chemicals and biologicals in the same container
- Always wear appropriate PPE
- Locate safety equipment in the lab
- Remember to fill out UCAIR form if an accident happens after alerting TA
- For chemical spills, clean with 70% alcohol
- For biological spills, decontaminate with bleach (pour over spill until the solution is 10% bleach if the spill is less than 1 L)