MNS Laboratory Safety

Agreement Spring 2020 Semester

By using your personal Bridges account to access this agreement, by providing your electronic signature at the end of the agreement, and by submitting the completed agreement, you are certifying that you personally reviewed the agreement's content, answered the content questions, and complied with all requirements of the **RWU Academic Integrity Pledge** while completing this agreement.

Notice Regarding Personal Health Conditions:
Lab users with the following health conditions are strongly encouraged to consult with their physician before participating in any laboratory exercises:

- Pregnancy
- Immuno-suppression
- Chronic health conditions such as heart, kidney, or liver disorders
- Any other temporary or chronic health condition which may impede safe laboratory participation

LABORATORY SAFETY REQUIREMENTS

Proper Laboratory Attire is Required At All Times

No skin exposed below the waist in the laboratory

- Full length pants that cover the leg down to the ankle
- Sturdy shoes that cover the entire foot (slip-resistant shoes or boots required in Wet Lab and Hatchery areas due to wet floors)
- A shirt should be worn that covers the stomach, lower back, and upper arms (“flowy” shirts and sleeves are also a hazard and should not be worn)
- Tie back long hair and remove loose items and jewelry before handling chemicals, biological items, or equipment to prevent contamination or entanglement

You Cannot Participate in Lab and Will Be Sent Home to Change If Improperly Attired

Lab Access & Security

- Only work in labs you are permitted to work in, and only use the chemicals/ equipment you are permitted to use in the way that you have been instructed to use them
- Close & lock all doors when leaving the labs. Never leave a lab door open or unlocked when the lab is not in use. Report open or unattended labs to your instructor or Public Safety.
- Students working in the labs after-hours must: attend a separate lab safety training session, have faculty/staff permission, only perform approved work, and always work in pairs with another trained person (trainings are valid for one year).
- Immediately report any suspicious behavior or missing chemicals/ equipment to your instructor.
- Do not prop inside or outside doors or allow persons you don't know to enter the building/ lab.

Fire/ Electrical Safety and Emergency Equipment

- Keep all aisles and doorways clear and accessible (at least three feet clear path).
- Keep all emergency equipment (fire extinguisher, eyewash, safety shower, etc.) accessible.
- In the event of any campus emergency, contact Public Safety at x3333. Emergency phone number posters are located next to each lab phone (keep lab phones clear and accessible).
- Never attempt to clean up a spill or put out a fire yourself.
- Do not use any improperly working equipment– report equipment to your laboratory instructor.

Chemical Safety and Waste Management

- Leave original chemical container labels intact. Read each chemical label before using chemical.

- Review each Safety Data Sheet (SDS) before using a chemical. RWU's SDS collection is kept online at: *hq.msdsonline.com/rogerwilliamsuniversity*
- Never put un-used chemicals back into their original containers. Only take as much as you need & dispose of any excess as hazardous waste.
- Properly label any non-original chemical storage containers with HMIS sticker and use "Experiment-in-Progress" signage for all experiment set-ups left unattended.
- Wear personal protective equipment as required by your lab instructor.
- Dispose of all chemicals and chemically contaminated gloves, plastics, glass, as instructed in their proper receptacles. Never throw these items away in the trash or pour them in the sink.
- Use the fume hoods when working with highly flammable, reactive, corrosive, toxic, or odiferous chemicals, or in situations which may generate splashes, excess heat, or gases.
- Return all chemicals to the stockroom immediately after use– do not leave unsecured.

Biological Safety & Waste Management

- Wear personal protective equipment as required by your lab instructor.
- Use biological safety cabinets when handling materials requiring sterile environments.
- Place all biologically contaminated gloves, plastics, & unbroken glass in the orange wire-frame baskets for autoclaving. Do not put free liquids in the autoclave bags. Biological waste liquids or liquids should be put into sturdy container and autoclaved separately.

HAZARDOUS WASTE SATELLITE ACCUMULATION AREA REQUIREMENTS (SAA)

Waste Labels and Waste Logs:

- <u>All hazardous waste containers must have a label</u> stating the words "HAZARDOUS WASTE" and a list of **all** of the chemicals in the container in legible English.
- All hazardous waste containers must have an associated waste log.

- The label and waste log **may not** contain abbreviations, chemical formulas, trade names, or generic names such as “Organic Waste.” It must list out complete chemical names.

- All waste containers must have a **unique** Bottle ID Number: Classroom Waste:
  Building – Room Number – Course Number – Bottle Number
  (Example: MNS-200-101-1)

  Research Waste:
  Building – Room Number – Advisor Name – Bottle Number
  (Example: MNS-200- Prof. Smith-A)

Containment, Storage, and Segregation:

- All waste must be stored in the lab’s Satellite Accumulation Area (SAA) which is demarcated with striped tape and has SAA signage in place.
- Waste must stay in the lab it was generated in– do not move containers from lab.
- Non-waste items and chemicals must not be stored in an SAA.
- All waste containers must be stored in adequate secondary containment.
- Incompatible waste must not be mixed in the same waste container.
- Incompatible waste must not be stored in the same secondary containment.
- All waste must be compatible with its container. Containers must be plastic unless it is incompatible with the waste (notify EHS if using non-plastic containers).
- Keep all containers closed with proper cap when not adding waste (no funnels, parafilm, tin foil, etc).
- Only fill containers to 80-90% full. Draw a “fill line” on the container for visual reference if necessary.

Accumulation Limits

- No more than 55 gallons of total waste or more than 1 quart of acutely hazardous waste may be stored in one SAA at a time.
- **Do not** put a start or end date on the waste container.

Pickup Requests

- Place a Facilities work order request to have full waste containers removed. Select the “Health/ Safety” option. Include the lab number, the bottle ID numbers, and the container sizes (4L, 5 gallons, gloves can, glass bin, etc.).

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

What is PPE?

- Personal protective equipment (PPE) is the term used to describe items of protective clothing worn to protect the use from exposure to chemical, biological, and physical hazards.
- Different types of PPE protect different areas of the body, and different types of PPE protect against different types of hazards.
- No one item of PPE can protect against all hazards.

Always check with your instructor:

- The type of PPE that should be worn for the experiment you are performing.
- If you're unsure of how to use an item of PPE before you begin your experiment • How to dispose or store your PPE at the end of each lab session

Before you use PPE, make sure your PPE is:

- The correct size and fits properly before you use it.
- In good shape (no signs of contamination, or rips or tears, etc.)

In addition to using PPE properly, always:

- Wear proper lab attire when working in the labs in addition to any required PPE.
- Use other safety equipment (fume hoods, biological cabinets, etc.) as directed
- Follow instructor and experiment directions, instructions on lab signage, and warning labels on chemicals and equipment.

Body Protection

Cotton Lab Coat (Revco 9oz. with flame resistance up to 50 launderings)

- For use in Biology (all levels) and Chemistry 100 and 200 level classes
- Low / mid-level health hazardous and low-level physically hazardous chemicals

NOMEX IIIA Lab Coat

- For use in Chemistry 300+ level classes and all Chemistry research
- Mid and high level physically hazardous chemicals (reactive, highly flammable, etc.)

Neoprene Chemical Splash Aprons (Ansell lightweight)

- For use in addition to a lab coat when working with high health hazard chemicals (acutely toxic, strong corrosives, carcinogens, etc.) or severe splash hazards

Disposable Splash Aprons

- For "clothing protection" purposes when dissecting specimens in Biology classes
    - Not for use with chemicals – not a substitute for a neoprene apron

Eye and Face Protection

Chemical Splash Goggles (UVEX with ANSI Z.87+ rating, UV-A/ UV-B protection)

- Required to be worn at all times when working with chemicals or biologicals

Face Shields

- Required when working with liquid nitrogen; severe splash hazards

Hand Protection

Nitrile Gloves (Disposable, Single-Use only)

- When handling chemicals or biologicals (no latex gloves allowed)
- Vinyl gloves (disposable single-use) available for users with nitrile sensitivity

Neoprene Gloves (Heavy-Duty Multiple Use)

- When handling greater volumes/ concentrations of acids, bases, oils, nonhalogenated solvents

PVA (Polyvinyl Alcohol) Gloves (Heavy-Duty Multiple Use)

- When handling greater volumes/ concentrations of aliphatics, aromatics, ketones, esters, halogenated solvents

Thermal Gloves

- When handling hot or cold items (e.g., autoclaved, heated, frozen)
- Handling liquid nitrogen

Cut-Resistant Gloves

- When working with knives, razors, and scalpels

EMERGENCY PROCEDURES

CALL PUBLIC SAFETY FOR ALL ON CAMPUS EMERGENCIES

Ext. 3333 from an on-campus phone
401-254-3333 from an off-campus phone

Injury or Illness

- Immediately report any injury or illness to your instructor.
- Your instructor will complete an injury/ illness report form and submit it to EHS.
- Call Public Safety in the event of a serious injury or illness (x3333), or in the event of a blood or bodily fluid spill.
- Do not attempt to clean up a blood or bodily fluid spill yourself. Block off the area of the spill until personnel arrive to clean up.

Chemical or Biological Exposure to Eyes or Face

- Instructor will immediately call Public Safety at (x3333).
- Activate emergency eyewash by pushing paddle with hand.

- Flush face and eyes for at least 15 minutes.
- Remove glasses, contacts, goggles, jewelry and other items from the affected area(s).

Chemical or Biological Exposure to Torso/ Arms/ Legs

- Instructor will immediately call Public Safety at (x3333).
- Activate emergency shower by pulling ring— have someone else pull ring if the affected cannot.
- Flush body by standing under shower for at least 15 minutes.
- Remove contaminated clothing and other items without further contaminating body.

Small Chemical Spill

Spill must meet all of these criteria: small volume (less than a gallon), low health/ physical hazard ratings. Is **not** causing fire, smoke, off-gassing, or other reaction, contained within lab, not headed for drains)

- Immediately report any chemical spill to your instructor.
- Your instructor will: Use paper towels or other compatible absorbent materials to contain chemicals.
- Collect spilled chemicals and clean-up materials and place in compatible container.
- Label container with hazardous waste label. Include all contents of container (chemicals, clean up materials, etc.) in legible English on the waste label.
- Place container in lab's hazardous waste Satellite Accumulation Area.

Fire and/ or Large Chemical Spill

Spill meets one or more of these criteria: large volume, high health/ physical hazard ratings, causing a fire, smoke, explosion, off gassing, or other reaction. Spill has breached lab and entered another lab, hallway, or has entered a drain.

- Immediately report any chemical spill to your instructor.
- Evacuate the area.
- Pull the fire alarm on your way out if possible. This will notify the rest of the building to evacuate, as well as alert emergency response (campus and town).
- Close doors / fume hoods behind you if possible. This will help contain the spill.
- From a safe place, call Public Safety (x3333). Give as much information as possible:
- Your name and contact information, where the accident occurred, what happened (fire, explosion, etc.), what chemicals were involved and what volumes, if anyone is hurt or trapped in the building, etc.
- Stay on the line until Public Safety hangs up!