



LABORATORY INSPECTION CHEAT SHEET

General Safety Observations			
Observation	Safety Reason	How to Implement	Citation Reference
Broken Glass			
Broken glass containers are not used for the disposal of biohazard-contaminated glass, sharps, gloves, used bulbs, etc.	Broken glass containers leave the university as non-hazardous waste. Contaminated sharps pose a risk to the community if not decontaminated appropriately.	Contaminated sharps must <i>only</i> go into an appropriately labeled sharps container. Only non-contaminated glass may go into the broken glass container.	OSHA 1910.1030 Chapter 64E-16 UM Biosafety Manual
Broken glass containers with plastic liners are available and <i>are not</i> greater than ¾ full.	The broken glass container with a liner ensures safer transport and disposal of broken glass. Broken glass nearing the top of the box poses a risk of incidental injury when used and may not close as designed.	Supply the lab with broken glass containers that are designated for the disposal of non-contaminated broken glass. Change the container once it's ¾ full.	OSHA 1910.1030 1910.1030(d)(4)(iii)(A)(2)(iii)
Documentation			
Emergency contact information updated (within the last year) on BioRAFT (SciShield) profile, with cell numbers (No UM office/lab numbers) of the Principal Investigator and at least one other person.	Having updated emergency contact information on BioRAFT promotes faster response times in emergencies and ensures EHS can communicate with lab personnel with clear communication channels for addressing potential hazards in the lab.	Ensure your BioRAFT lab profile has up-to-date emergency contact information by accessing the “Edit” tab under the lab profile.	Hazard Communication 1910.1200 UM Laboratory Safety Manual



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Lab has verified that their profile in BioRAFT (SciShield) reflects current information for the lab, specifically ensuring the lab Research Focus, Spaces, and Members are up to date.	Having updated information for the lab ensures EHS can respond appropriately in emergencies and provide customer service specific to the lab knowing the lab's locations, membership, and brief focus of work.	Ensure your BioRAFT lab profile has up-to-date information, including a Research Focus that is accurate, up to date lab Spaces, and reflects current lab Members in their respective sections on the profile.	Hazard Communication 1910.1200 UM Laboratory Safety Manual
Electrical Safety			
Electrical panels are unobstructed (3 ft of clearance in front of panels).	In the event of an emergency, accessibility to the electrical panel is critical.	Remove any items within 3 feet of the electrical panels in your lab.	OSHA regulations 29 CFR 1910.303
Permanent equipment is plugged directly into an outlet (no electrical/extension cords) and cords are not frayed, damaged, or daisy chained together.	Extension cords and power strips are not designed for the continuous load of permanent equipment. Overloaded cords can overheat, increasing the risk of electrical fires.	Establish a system for reporting damaged cords to a designated person (e.g., lab manager) who can then arrange for prompt replacement.	UM Laboratory Safety Manual
Emergency Equipment			
Eyewashes and safety showers are free of obstruction for easy access.	Life/Health-critical safety equipment cannot be blocked and must be available for immediate use in an emergency.	Ensure unobstructed access to all applicable equipment by removing any items around or blocking safety equipment.	Prudent Practices in the Laboratory UM Laboratory Safety Manual UM Biosafety Manual
Eyewashes are tested weekly by lab personnel/UM Facilities and documented. Eyewashes have safety caps over them. If lab uses eyewash bottles, they are unexpired.	Regular testing clears lines of sediment and ensures they are functioning.	Assign lab personnel to conduct weekly testing of eye washes by running them ≥ 10 seconds into drain or receptacle. Document testing in some manner; either on tags or a nearby check list.	Prudent Practices in the Laboratory UM Laboratory Safety Manual



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Fire Extinguisher(s) mounted properly and free from obstruction.	Fire extinguishers should be mounted on brackets or in wall cabinets and not be obstructed for easy access in case of a fire.	Notify the EHS Fire Safety Manager of inappropriate fire extinguishers so a remedy can be made, or an appropriate fire extinguishing installed.	Prudent Practices in the Laboratory
Appropriate and unexpired first aid kits are present in the laboratory.	Having a first aid kit readily available allows for prompt treatment of minor injuries. Report all injuries/near-miss incidents.	Designate a responsible person in the lab to oversee first aid kit maintenance and ensure it is always well-stocked.	OSHA Medical Services and First Aid 1910.151
Emergency Preparedness			
Lab has an appropriate spill kit present in the laboratory (biological, chemical, and/or mercury spill kit).	This is essential in the event of a spill to clean up spilled material efficiently and safely.	Purchase an appropriate spill kit. Contact EHS to discuss what spill kit is best suited for your lab. Train each lab member on correct use of spill kit.	Prudent Practices in the Laboratory UM Laboratory Safety Manual
Housekeeping			
Equipment/Materials not obstructing means of egress, aisles, fire alarm, pull stations, etc	Exits and hallways need to be accessible for everyone in the event of an emergency, including for people with disabilities who may require assistance or use mobility aids like wheelchairs.	Remove and relocated items blocking pathways and exits. Encourage a culture of safety awareness where everyone takes responsibility for keeping exits clear.	UM Laboratory Safety Manual
Food/Drinks/Cosmetics/Lotions and related items are not present in the lab.	Applying cosmetics and/or eating/drinking in the lab greatly increases risk of consumption/absorption of unwanted materials into the body that are present in the lab.	Remove all food (and/or) beverage related items from the lab. All food and beverage related items must be stored, prepared, consumed, and disposed outside of the laboratory. Do not apply lotions or cosmetics in the lab.	Prudent Practices in the Laboratory UM Laboratory Safety Manual
General housekeeping is satisfactory.	Good housekeeping promotes a safer, more efficient, and focused research environment	Encourage researchers to declutter their workspaces daily, disposing of unnecessary items and	UM Biosafety Manual



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	while minimizing unnecessary hazards.	returning used equipment to designated locations.	
Items are stored at least 18” below sprinkler heads or are stored at least 24” below ceilings in non-sprinklered rooms.	Fire sprinkler systems can only function properly if given the proper distance between the sprinkler head and areas where a fire may be occurring.	Move items closer than 18” to ceiling down to a lower level so as not to physically obstruct this clearance. Non-sprinklered rooms require 24” of clearance.	NFPA 1 (FL) Fire Code: Chapter 10.18.3
Lab floor, bench tops and furniture are easily cleanable (made of non-porous materials) and uncluttered to allow for safe work practices.	Lab surfaces must be nonporous to be adequately cleaned/decontaminated due to regular use and potential spills. Fabric chairs are not permitted in laboratories due to the inability to decontaminate.	The lab floor, bench tops, and furniture must have surfaces that are easy to clean and disinfect (i.e., no fabric or porous material). Keep lab space and benches free of clutter and unnecessary items.	Prudent Practices in the Laboratory UM Laboratory Safety Manual
Lab is free from slip, trip or fall hazards.	Slips, trips, and falls are a leading cause of workplace injuries.	Establish clear guidelines for keeping the lab clean and organized.	UM Biosafety Manual
The lab is under restricted access (doors are locked and are kept closed). All doors leading to the laboratories must be kept closed.	Locked and closed doors deter unauthorized access, potential theft, and promote hazard containment.	Ensure all lab personnel have keys and/or card access to the lab and that the lab always remains locked. Doors must not be propped open.	Prudent Practices in the Laboratory
The lab sink is equipped with soap and paper towels for handwashing.	Hands can be a major source of contamination in a research lab. They can harbor microorganisms that can compromise experiments, samples, or even pose a health risk to researchers.	Encourage researchers to report empty soap dispensers or low paper towel supplies to facilities for prompt refilling.	UM Biosafety Manual
Facilities			
The facility is in good condition; repairs are not needed; no open	A well-maintained facility minimizes risks,	Encourage occupants to report any maintenance concerns like leaks,	UM Biosafety Manual



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penetrations disrupting fire zoning.	promoting a safer environment for everyone working or visiting the building.	flickering lights, strange noises or fire zoning	
PPE/Lab Attire			
Appropriate clothing is worn in the lab (lab (closed toed shoes, long pants, no holes or rips, no crop tops).	Appropriate lab attire decreases the level of exposure and risk of injury.	Include a clear and concise policy on appropriate lab attire in your lab specific safety manual. This should outline specific requirements for clothing, footwear, and accessories.	Prudent Practices in the Laboratory UM Biosafety Manual UM Laboratory Safety Manual
Disposable gloves are not reused. Lab members remove gloves before leaving the lab and opening doors.	Reusing of gloves is likely to cause exposure. Not removing gloves increases the risk for potential contamination on door handles and outside the lab.	Remove all personal protective equipment (PPE), including gloves and lab coats, when leaving areas in which PPE is required for hazardous work. Do not reuse gloves.	Prudent Practices in the Laboratory UM Biosafety Manual
Lab coats, safety glasses, and disposal gloves are worn while working in the lab.	Lab coats, safety glasses, and gloves are the first line of defense in working in a potentially hazardous environment.	Lab coats (made of appropriate material) are required when working in wet-bench laboratories. Flame-retardant coats are required when working with highly reactive chemicals.	Prudent Practices in the Laboratory UM Biosafety Manual UM Laboratory Safety Manual
Laboratory personnel using a respirator are enrolled in the Respiratory Protection Program	Improper use of respirators without proper training of respirators poses risk to the users from hazardous chemicals and/or biological agents.	Laboratory personnel requiring a respirator should be enrolled in the Respiratory Protection Program provided by EHS (Medical evaluation, training and annual fit test).	https://www.osha.gov/SLTC/respiratoryprotection/standards.html https://umiami.policystat.com/
Signage			
The lab has additional safety signs as needed, like biohazard warnings, "No Flammables" labels, and "No Food or Drink" signs on fridges/freezers.	Safety signage communicates hazards that may not be obvious to all individuals in the laboratory. Signage is	Identify hazards in the lab and select standardized safety symbols or clear, concise wording for signage. Place signs prominently	OSHA - Occupational Exposure to Hazardous Chemicals in Laboratories 1910.1450 UM Biosafety Manual



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	critical in ensuring individuals equip themselves with PPE or other measures.	at the location of the hazard or the area they apply to.	
Doors leading into the lab(s) are labeled with appropriate hazard signage/symbols (biohazard, radiation, NFPA diamond, etc.)	These signs inform individuals entering the lab about the types of hazards present. This allows individuals entering the lab to observe appropriate precautions.	Based on the identified hazards, select the appropriate standardized hazard symbols. Place the signage prominently on the laboratory door, ensuring it is clearly visible and easily readable.	OSHA - Occupational Exposure to Hazardous Chemicals in Laboratories 1910.1450 UM Biosafety Manual
Lab Safety Information & Emergency Contact cards are posted at all lab entrances and have been updated <u>annually</u> .	Having safety information and emergency contact details available at lab entrances allows all individuals entering the space to be aware of hazards within and who to contact in an emergency without entering. Updating the card annually with a new date ensures all contact information is still accurate.	Lab Safety Information & Emergency Contact cards are readily accessible on the EHS website or cardstock copies are available upon request from EHS.	Hazard Communication 1910.1200 UM Laboratory Safety Manual



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Biological Safety Observations			
Observation	Safety Reason	How to Implement	Citation Reference
Documentation			
Lab has completed a BioRAFT (SciShield) Biological Registration	The biological registration allows for better oversight and resource allocation from biosafety in providing safety guidance to the lab, as well as informing emergency response personnel of hazards in the space.	For guidance on submitting a Biological Registration, please see this page for more guidance, and this page for step-by-step instructions.	UM Biosafety Manual UM Laboratory Safety Manual BMBL
Lab has submitted a Biological Hygiene Plan in BioRAFT	BMBL guidance dictates that labs must have a site-specific biosafety manual. The hygiene plan completes this requirement while providing lab personnel agent specific training and detailing lab specific safety SOPs.	Complete the Biological Hygiene Plan available on the EHS website. Update for any new risk group items.	UM Biosafety Manual UM Laboratory Safety Manual BMBL
Equipment			
Centrifuges are working properly, and safety lids lock accordingly.	In the event of a malfunction, test tubes or centrifuge parts could become projectiles, causing severe injury or contamination to anyone nearby.	Establish a preventative maintenance schedule for all centrifuges in the lab. This schedule should be based on manufacturer recommendations and usage frequency. Equipment that is malfunctioning must be properly maintained or replaced.	OSHA Interpretation of 1910.212 UM Biosafety Manual
Vacuum/aspiration systems have in-line filters, and the trap flask has clean disinfectant and is in secondary containment if sitting on the floor.	In-line filters help ensure containment of materials being aspirated and any potential aerosols from leaving the lab. Clean disinfectant ensures waste is promptly decontaminated. Secondary containment precludes the possibility of a spill in the lab resulting from broken glass.	Regularly replace the in-line filter according to the manufacturer's recommendations or when it shows signs of clogging or saturation. Select a disinfectant appropriate for the type of material being aspirated and replace it regularly. Place trap flasks on the ground into a tray for secondary containment.	UM Biosafety Manual
Waste Management			
Appropriate hard-plastic sharps containers are used for disposable sharps. Sharps bins are labeled with the principal investigator's name, room	These containers are puncture-resistant and designed specifically for the safe disposal of needles, syringes, scalpel blades, and other sharp objects. Labeling ensures origin of	Provide training to all lab personnel on the safe use and disposal of sharps, including proper sharps container procedures. Ensure	Chapter 64E-16 UM Biosafety Manual UM Laboratory Safety Manual



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number, building name, address, date placed in use, and waste is <i>below</i> the container full-line.	sharps can be determined in the event of an accident.	appropriate sharps bins are in place and labeled accordingly.	
Biohazardous waste bags are properly packaged, prepared, and labeled with building, room number, and address for disposal. Waste bags are off the floor and are less than $\frac{3}{4}$ full.	These materials can contain infectious agents, pathogens, or toxins that can cause serious illnesses if they encounter people or the environment.	Provide training to lab personnel on proper biohazardous waste handling procedures, including bag selection, filling, closure, labeling, and storage. Ensure bags are goose-necked closed, boxes are taped shut, bags are not sitting on the floor outside of boxes, and bags are appropriately labeled.	Chapter 64E-16 UM Biosafety Manual
Biological safety cabinets and clean benches are certified annually.	Regular certification ensures the BSC or clean bench is functioning properly and maintains the critical containment barriers necessary for worker and/or product safety.	Use a certification schedule as a reminder to schedule regular maintenance for your BSCs and clean benches on an annual basis. For more guidance, see the EHS website here .	NSF/ANSI 49 UM Biosafety Manual
Biological safety cabinets and clean benches are not overfilled or cluttered.	This can reduce the effectiveness of airflow within the cabinet increasing the risk for loss of containment, loss of sterile environment, and an increased risk of exposure to laboratory personnel to hazardous agents.	Establish a regular "clean-out" policy encouraging researchers to remove expired materials, unnecessary items, and completed experiment leftovers from the BSC or clean bench after each use. Ensure only the necessary materials are present for daily procedures.	BMBL NSF/ANSI 49 UM Biosafety Manual
Biological safety cabinets and clean benches that are not working or have <i>not</i> been certified within the year are prominently tagged "Out of Service" and are <i>not</i> in use.	Prevents personnel from unknowingly using equipment that may not be functioning properly or certified to be working adequately, posing a safety risk.	If a BSC or clean bench malfunctions or exhibits any safety concerns, immediately tag it "Out of Service", remove it from use, and schedule service. Any cabinets not being used for extended periods must be prominently tagged "Out of Service".	BMBL EHS Equipment UM Biosafety Manual
Needles are not recapped, bent, broken, removed from syringes, or manipulated by hand before disposal. Needles (or other sharps) are not left unattended on benchtops or improperly disposed.	Recapping a needle elevates the risk for needle-sticks. Bending, breaking, and removing syringes can cause the needle to flick or dart unexpectedly, increasing the chance of accidental needle-sticks. Unattended needles pose risk to lab members.	Provide comprehensive training to staff on safe sharps handling practices. Post sharps signage to remind employees of safety standards. Labs that must recap needles must outline this SOP in the Biological Hygiene Plan and get EHS approval.	UM Biosafety Manual CDC



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Chemical Safety Observations			
Observation	Safety Reason	How to Implement	Citation Reference
Compressed Gas			
Gas cylinders either have regulators while in use or are kept capped while not in use. Hazardous incompatible gas cylinders are properly segregated.	This is an OSHA requirement in place to protect employees from serious injury in the event of a regulator failure. Caps protect valves in the event of cylinders falling. Incompatible gases may cause explosions.	Attach safety cap when cylinder is not in use, especially when moving the cylinder. Segregate incompatible gas cylinders.	OSHA 1901.253 UM Laboratory Safety Manual
Gas cylinders are secured safely with appropriate restraint, with an appropriate number on a single chain (typically 3-4 per chain max)	Securing compressed gas cylinders between the middle and shoulder of the cylinder follows recommended best practice for ensuring cylinders cannot be easily tipped or knocked over and converted to a rocket.	Equip your lab with appropriate restraints for all gas cylinders in use, limiting the number of cylinders per restraint as appropriate, typically 3-4 cylinders per restraint. Contact facilities to mount brackets for straps if needed.	Prudent Practices in the Laboratory UM Laboratory Safety Manual
Documentation			
Annual chemical inventory has been updated and submitted to EHS/ BioRAFT.. Lab personnel are aware about locating the SDS of chemicals	Maintaining an updated chemical inventory is an OSHA requirement. The inventory helps EHS and emergency response personnel to identify chemicals in the lab and assess potential hazards associated with those chemicals. Knowledge of location	Ensure the updated inventory has been submitted annually using the EHS Chemical Inventory Template .	UM Laboratory Safety Manual 29 CFR 1910.1200(e)(1)(i)
Time sensitive chemicals, such as peroxide formers are not properly tracked or are beyond expiration.	Using expired or untracked time-sensitive chemicals significantly increases the risk of accidents and may have unintended consequences on research.	Check time-sensitive chemicals annually to ensure dates are not expired. Dispose of expired chemicals and replace as needed.	OSHA 1910.1450
Flammables			
Flammable liquids are stored in fire-proof or explosion-proof refrigerators only.	Flammable lab materials may not be stored in a commercial refrigerators or freezers. Using an incorrect type of refrigerator or freezer is an explosion hazard because the electrical components are exposed. There are no electrical components located in the interior of the refrigerator and the	Purchase a refrigerator designed to store flammables and volatiles.	OSHA 1910.1450



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	compressor's electrical components have been sealed in a vapor-proof enclosure for additional safety.		
Fume Hood			
Chemical fume hoods (CFH) that are not working or have <i>not</i> been tested within the year are prominently tagged "Out of Service" and are <i>not</i> in use.	Prevents personnel from unknowingly using equipment that may not be functioning properly and could pose a safety risk.	If a CFH malfunctions or exhibits any safety concerns, immediately and prominently tag it "Out of Service", Contact EHS for testing, inspection and further assistance.	UM Laboratory Safety Manual ASHRAE 110
Chemical Fume hoods are not overfilled or cluttered, and items stored in fume hoods are not disrupting normal use and/or airflow.	This can reduce the effectiveness of containment and increase the risk of exposure of laboratory personnel to hazardous chemical agents.	Plan your work before you start experiments in the CFH so you use only necessary equipment and materials to reduce overcrowding. Avoid storing equipment and materials inside the CFH where possible.	NSF/ANSI 49 UM Laboratory Safety Manual
Liquids			
Hazardous liquid chemicals (and waste) are in a secondary containment.	In case of container failure or human error, secondary containment keeps spilled material contained until further action can be taken.	All hazardous liquids must be kept in some type of secondary containment.	OSHA 1910.1450 UM Laboratory Safety Manual
Signage/Labels			
Chemical containers, including working solutions, are labeled properly according to OSHA (GHS) standards (chemical formulas alone are not acceptable as a form of labeling). Labels are visible, intact, and in English.	GHS labels use a standardized format with pictograms (symbols) and signal words (like "Danger" or "Warning") to convey critical information about the hazards of a chemical.	Review the existing labels on all chemical containers in your laboratory. Identify containers with faded, incomplete, or outdated labels that do not comply with GHS standards.	OSHA 29 CFR 1910.1200 UM Laboratory Safety Manual
The Satellite Accumulation Area (SAA) sign is completed and posted in an appropriate location (not in the fume hood or beside a drain).	Improper storage can lead to contamination of the environment. An SAA sign clearly identifies a designated area for the temporary storage of hazardous waste before final disposal.	The EHS Hazardous Materials team can provide a copy of the SAA sign upon request and provide guidance on best places to hang this signage.	UM Laboratory Safety Manual
Storage			
Chemical containers (including gas cylinders) are in good condition (not old, rusty, bulging, leaking, and no crystal formation) with functional caps (no cracks).	Compromised chemical containers can fail and result in exposures, spills, explosions, contaminations, and injuries.	Contact EHS for disposal of chemical containers in poor condition. Do not attempt to move compromised containers without EHS assistance	UM Laboratory Safety Manual Prudent Practices in the Laboratory



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Chemicals are stored and segregated by chemical hazard class (i.e., acids and bases separated; acids are segregated by type: inorganic or organic).	Certain chemical classes can react violently or uncontrollably when stored in proximity.	Allocate designated storage cabinets for each major hazard class (flammables, corrosives, oxidizers, etc.). Consider using color-coded labels on cabinets to visually identify the hazard class stored within.	Prudent Practices in the Laboratory NFPA 45 UM Laboratory Safety Manual
Chemicals are not stored in an unsafe location (i.e., stored on shelves above shoulder height, flammables stored outside of a flammable cabinet, etc.).	Storing chemicals in unsafe locations significantly increases the risk of accidents, injuries, fires, spills, and exposures to hazardous materials in a research environment.	Store chemicals in a location that is appropriate for the hazard class. Chosen location is accessible without risk of pulling a chemical down onto personnel or dropping a container and is organized with good housekeeping.	UM Laboratory Safety Manual
Chemicals are not being stored inside fume hoods (designated storage cabinets underneath fume hoods are generally fine).	Storing chemicals inside the hood obstructs airflow and reduces the hood's effectiveness.	Utilize designated storage cabinets based on hazard class (acids, flammables, corrosives, etc.) outside the fume hood for chemical storage.	BMBL UM Laboratory Safety Manual
Cryogenic materials are stored and handled properly	Mishandling cryogenics or not wearing proper PPE increases the risks of getting injuries from cryogenics.	Use gloves certified for use with cryogenics, safety goggles, face shield, lab coat, and closed toed shoes. Storage of cryogenic liquid must be in an open space. Move the cryogenic liquid into an open space.	OSHA 29 CFR 1910.101 OSHA 29 CFR 1910.132 OSHA 29 CFR 1910.133 OSHA 29 CFR 1910.138 UM Laboratory Safety Manual
Waste Management			
Chemical waste containers are properly labelled and are capped when not being filled.	Proper labeling with the contents and hazard information allows researchers to easily identify the waste material.	All hazardous waste must be labeled "Hazardous Waste" and have an indication of the hazard. Please contact EHS Hazardous Materials team to schedule a training.	Resource Conservation and Recovery Act (RCRA) UM Laboratory Safety Manual
Chemical waste containers are closed and in good condition, not overfilled, and are compatible with held waste (i.e., no acid in metal, no HF in glass, etc.).	Using containers made from materials incompatible with the waste they hold can lead to chemical reactions. These reactions can weaken or corrode the container, increasing the risk of leaks.	Researchers should visually inspect containers for signs of damage like cracks, rust, or leaks before adding waste. Contact EHS if such containers are found.	Resource Conservation and Recovery Act (RCRA) UM Laboratory Safety Manual
Chemical waste is stored properly at the Satellite Accumulation Area and segregated by hazard class.	Improper storage of waste increases risk for leaks and exposures. Hazardous wastes must be stored and segregated appropriately to prevent reactions compromising safety of lab.	Equip the lab with a variety of appropriately labeled waste containers for each hazard class. These labels should be clear and easy to understand, using pictograms or hazard symbols when possible.	UM Laboratory Safety Manual