ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

2023 LAB SAFETY AWARDS & INNOVATION EVENT

LAB SAFETY AWARD EH&S

FREEZER TAGS TO TRACK DEFROST DATES AND MAINTAIN A SCHEDULE

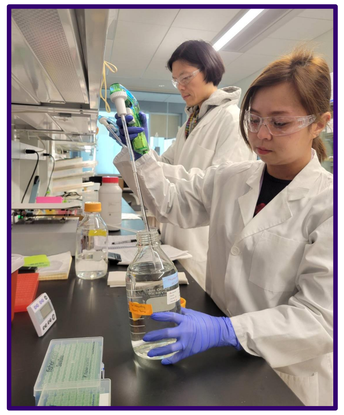
MacCoss Lab
Genome Sciences, School of Medicine

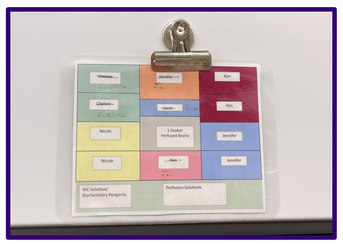
Manufacturers recommend defrosting freezers at least once a year or more frequently if the freezer is prone to ice build-up. For labs that have more than just a couple of freezers, it can be challenging to keep track of defrost schedules. Having a tag on the front of the freezer that states when the freezer was last defrosted is an easy way to notify all personnel of the last defrost date and provides a visual cue for when the next defrost date should be scheduled.

FREEZER MAPS TO EASILY IDENTIFY CONTENT OWNERS

Morton / Schwartz Labs
Metabolism, Endocrinology & Nutrition, School of Medicine

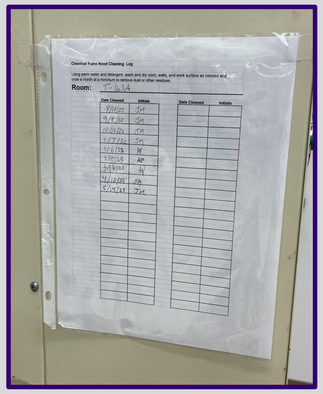
Sharing equipment is a great way for labs to pool resources, but it is important to have strategies in place to track users and maintain awareness of responsible parties. Having a map on the front of shared freezers that clearly illustrates the current content owners for each storage compartment by using color coding specific to research groups and the last names of the researchers makes it easy for all users to know where to store their items and who to notify if any issues arise with the freezer or materials inside.





FUME HOOD CLEANING LOGS

John Morton / Ladiges Lab
Comparative Medicine, School of Medicine

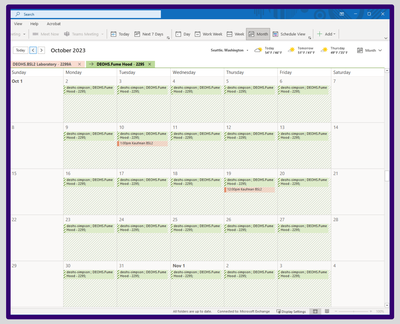


Fume hoods are the primary method of exposure control in laboratories and can provide adequate protection for most processes when used correctly. Maintenance of the fume hood is key to ensuring that this piece of equipment is functioning well and protecting users from hazardous materials as intended. Monthly cleanings are a great way to remove any residue buildup on the surfaces, discourage unnecessary storage of items, and provide clean workspaces in the fume hoods. Posting a log with cleaning instructions on the side of the fume hood allows lab members to document this practice and ensures it is sustained.

LAB EQUIPMENT AND ROOM RESERVATION TOOL

Glen Abel / Samy Lab
Environmental Health Laboratory & Trace Organics Analysis Center, Environmental & Occupational Health Sciences, School of Public Health

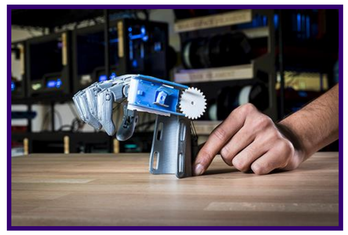
Maintaining equipment such as fume hoods in shared spaces is important for the safety of all users of the space. When shared rooms are not always occupied on a routine basis, it can be challenging to keep track of when the space or specific pieces of equipment are available for usage. Having reservation calendars for rooms and for pieces of equipment, including fume hoods, ensures that the item is available when needed, reduces conflict over usage, and encourages good maintenance practices.



VIRTUAL BUDDY SYSTEM

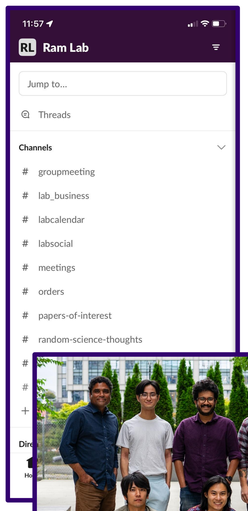
Alexander Lefort / Fabrication Research Lab
Computer Science & Engineering, College of Engineering

The Fabrication Research Lab maintains a virtual buddy system by using cameras in the space and combining them with the ability to remote into an on-site control computer. This allows lab members to communicate with the lab manager, who can watch for any potentially hazardous conditions, provide guidance, and contact emergency services if needed.



SLACK CHANNEL FOR LAB EQUIPMENT ISSUES

Savan Lab
Immunology, School of Medicine



Maintenance logs are used to document routine equipment practices and repairs done, but having a place to capture questions, concerns noted, or notifications impacting equipment usage is valuable too. Slack is a cloud-based messaging app that organizes conversations into dedicated spaces called channels and is accessible on computers and smart phones.

Having a channel for specific lab topics like lab equipment issues allows the researchers in the lab to share information and make decisions about needs or concerns promptly.

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EMERGENCY CLOTHING DRAWER

Michelle Katz / Cobb Lab
MolES, College of Engineering

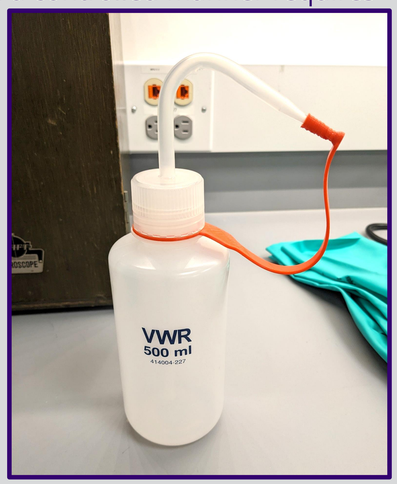
In the event of an emergency, it may be necessary to remove apparel, especially if it is contaminated with hazardous chemicals. Having lab members bring in a set of emergency clothing and storing it where emergency response kits are kept, encourages personnel to prioritize their own safety and reduces the chances of them hesitating to remove clothing when necessary. Keeping the clothing in clear, labeled, plastic bags keeps them organized, clean, and easily accessible.

3D-PRINTED CAPS CUSTOMIZED FOR SQUIRT BOTTLES

Wilson Deibel Lab
Burke Museum, College of Arts & Sciences

Hazardous chemicals must always be stored in closed containers. Squirt bottles are, by design, essentially "open" containers. Not only are they not possible to fully close, but they also potentially drip or dribble. Work involving usage of squirt bottles to be able to effectively aim and deliver chemicals to samples in a controlled manner requires good container storage practices.

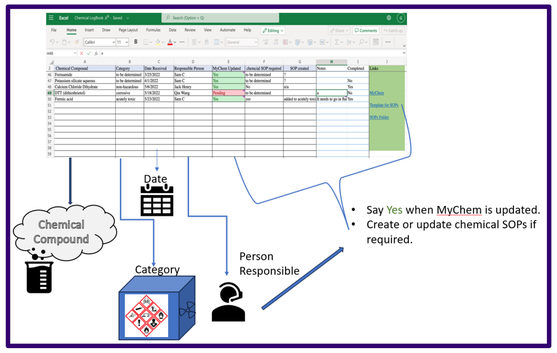
When this lab could not find any vendors selling caps for squirt bottles, they used a 3-D model to print caps in plastic filament which are resistant to chemicals used, able to attach to their bottles, and well-fitted to the nozzles.



CHEMICAL SHIPMENT TRACKING LOG

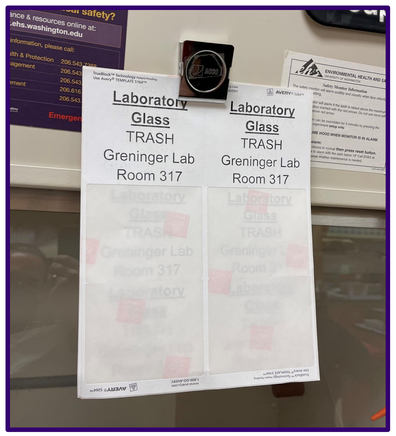
Garima Thakur / Lutz Lab
Bioengineering, College of Engineering

Keeping track of all chemicals received and used by a lab is a necessary task that can be complex depending on the size of the lab and the number of chemicals used. This lab has established a process where all packing slips for chemicals received are given to the Chemical Hygiene Officer (CHO), who then adds relevant information into an Excel chemical logbook and notifies the person who ordered the chemical via the comment feature. That person then updates MyChem with the chemical's information and informs their CHO if any of the lab's standard operating procedures need to be updated or if a new one needs to be written.



LAB-SPECIFIC STICKERS FOR LAB GLASS WASTE BOXES

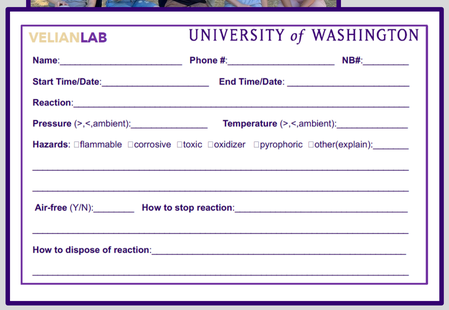
Erin Goecker / Greninger Lab
Laboratory Medicine and Pathology, School of Medicine



Any uncontaminated and non-hazardous lab glass or plastic being disposed of should be placed in sturdy cardboard boxes labeled with the room number and Principal Investigator's name. Providing lab members with stickers that already list this information on them, is an easy way to ensure that all lab glass waste boxes are properly and clearly labeled as soon as they are set up for usage.

REACTION CARDS WITH SPECIFIC INCIDENT RESPONSE INFORMATION

Robert Love / Velian Lab
Chemistry, College of Arts & Sciences


VELIANLAB UNIVERSITY of WASHINGTON

Name:_____ Phone #:_____ NB#:_____

Start Time/Date:_____ End Time/Date: _____

Reaction:_____

Pressure (>,<,ambient):_____ Temperature (>,<,ambient):_____

Hazards: □flammable □corrosive □toxic □oxidizer □pyrophoric □other(explain):_____

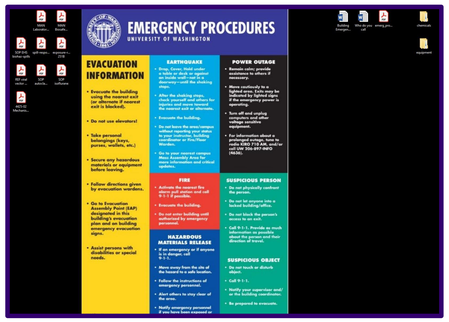
Air-free (Y/N):_____ How to stop reaction:_____

How to dispose of reaction:_____

Sometimes chemical reactions need to run for long periods of time or even overnight. Since the researcher cannot always be present in those cases, it is important to provide certain pieces of information about the reaction for everyone's safety. When a reaction is set up, one of these cards is filled out with information about the reaction. Should the reaction need to be stopped, readers will know the hazards, how to stop the reaction, and how to dispose of the contents in a safe manner.

USING EMERGENCY RESPONSE POSTERS AS DESKTOP BACKGROUNDS

Toni Haun /Yazdan-Shahmorad Lab
Bioengineering, College of Engineering



Emergencies occur in a range of severity, and all personnel need to know what to do when they happen. Keeping emergency response information in a highly visible and easily accessible location is important for ensuring prompt, appropriate, and effective responses to any type of incident. Using emergency response posters as desktop backgrounds is an easy way to display them well.

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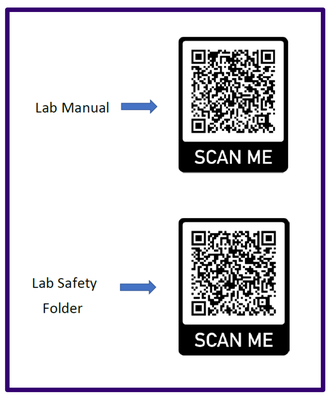
QR CODE TO ACCESS SAFETY DOCUMENTS IN SHARED EQUIPMENT ROOMS

Carter Beamish
Materials Science & Engineering, College of Engineering

Safety documents such as manuals, safety plans, training records, and maintenance logs need to be readily accessible in spaces where work with hazardous materials is being performed. Shared equipment rooms can sometimes be quite large, so having QR codes posted in a variety of locations around the room allows users to quickly access the necessary documents using smart phones and reduces the need for people to travel across the room to reference or input information into safety documents while performing their work.

QR CODES TO ACCESS LAB-SPECIFIC SAFETY DOCUMENTS

Levitt Lab
Neurological Surgery, School of Medicine



A lab's chemical hygiene plan includes the Laboratory Safety Manual as well as lab-specific safety documents. Keeping safety documents in electronic format is an effective way to ensure all personnel are accessing the same file and to easily update it when needed. Using a QR code to make the lab's safety document folder easily accessible increases the likelihood of updates or additions to the files being made promptly.

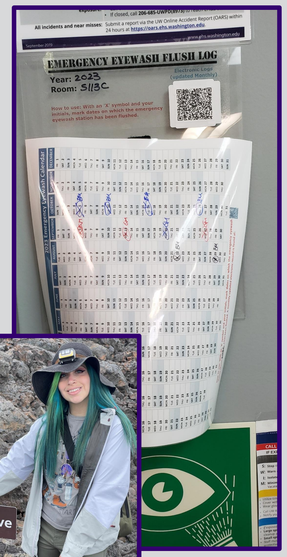
CHEMICAL CONTAINER QR CODE STICKERS THAT LINK TO MYCHEM

Virginia Engel
Civil & Environmental Engineering, College of Engineering

In shared spaces, there can be numerous chemicals present and people may encounter chemical containers belonging to labs other than theirs. In this department, a QR code is generated for each chemical container and connects to the specific entry for it in MyChem. This system was set up using a spreadsheet to catalog the container's information and Avery's online label-making tool, which allows you to import data from a spreadsheet, format the layout as desired, and create a QR code based on the MyChem URLs in the spreadsheet. The QR code system helps track which chemical belongs to whom and makes SDSs readily and easily accessible. A researcher can scan the QR code with the camera on their phone to open the MyChem page and then access or edit the container's information as needed from there.

LAMINATED EYEWASH LOGS WITH A QR CODE TO ACCESS RECORDS

Batool Mutawe / MacCoss Lab
Genome Sciences, School of Medicine



Eyewashes in laboratories need to be flushed weekly to check that flow pressure is adequate, assure the water is clear, and to assure the water does not have microorganisms or foreign particles. Weekly flushing must be documented, and those records need to be available for review. Some labs have multiple eyewashes in a variety of spread-out locations, making flushing practices and record keeping a challenge. Laminated logs posted at each station allow the responsible person to mark that they have flushed that eyewash on the required date. The QR code attached to the log, allows users to access previous records for that eyewash station. The records are updated on a monthly basis.

Vadim Pascua / Raftery Lab
Anesthesiology and Pain Medicine, School of Medicine

LAB SAFETY MASCOT

This lab has created their own safety mascot, Reggie, to serve as a constant visual reminder and symbolize a commitment to safety within the laboratory. This approach not only fosters a sense of responsibility among lab members but also reinforces the importance of adhering to safety protocols on a daily basis. The commitment to safety prioritizes the well-being of individuals working in the lab and contributes to the scientific community's efforts to maintain safe and responsible research practices, ultimately ensuring the integrity of scientific endeavors.

QR CODE TO ACCESS OARS

This lab has added QR codes throughout the workspace, providing quick access to safety manuals and the online accident reporting system (OARS). There are computers with these resources available on them in the workspace, but placement of the QR codes allows for quicker access via any smartphone when needed. By simplifying the process of accessing incident reporting mechanisms, safety awareness is increased, the risk of accidents is reduced, and the culture of safety in the lab is strengthened.

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TEACHING LAB COURSE MANUALS THAT INCLUDE SAFETY INFORMATION

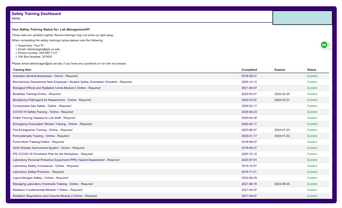
Alex Prybutok
Chemical Engineering, College of Engineering

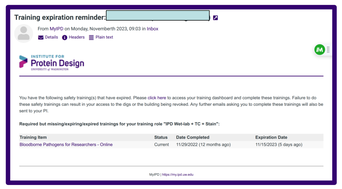
Some teaching lab spaces are also used by research groups, resulting in usage by a variety of UW personnel with varying experience levels. Writing lab course manuals with location-specific safety information included in them can be labor-intensive, but it helps ensure that undergraduates working in the space for a class are aware of the hazards present and know how to conduct course activities in a safe manner.

TRAINING RECORD PROGRAM THAT SENDS REMINDERS

Baker Lab / Institute for Protein Design
Biochemistry, School of Medicine

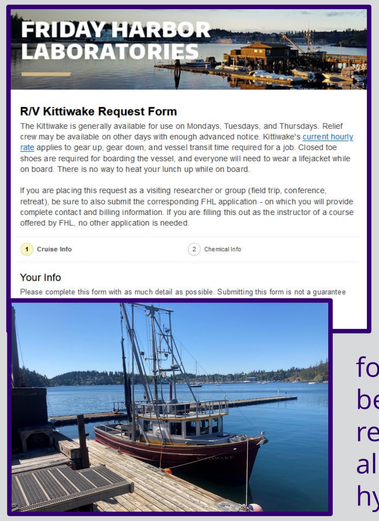
Training requirements vary based on types of work being performed and materials being used, so managing training completion for large groups of personnel is challenging. This lab developed a program to notify people when trainings expire. Items on the person's list link directly to courses on the EH&S website. Reminder emails are sent out before a training expires, giving people ample time to respond. Once trainings expire, a notice is sent informing the person they need to complete the training to retain access to lab resources. The system allows for customization based on the types of work performed by an individual.





ONLINE VESSEL USAGE REQUEST FORM THAT INCORPORATES CHEMICAL HYGIENE PLAN ELEMENTS

Eric Loss
Friday Harbor Laboratories, College of the Environment

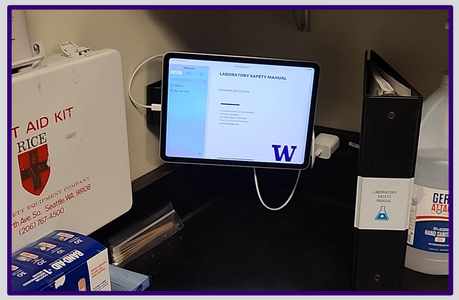


Research involving hazardous chemicals and conducted out in the field, including on research vessels of any kind, requires a chemical hygiene plan just like work conducted in a lab on campus. The person in charge of the vessel is usually not the person in charge of the research being done, so communication about expectations and hazards present are important. Personnel at Friday Harbor have developed an online vessel usage request form that captures whether any chemicals are being brought on board and prompts the researcher to check that they have completed all the necessary elements of their chemical hygiene plan prior to boarding.

INSTALLING TABLETS IN TEACHING LABS TO PROVIDE ACCESS TO SAFETY DOCUMENTS

Sara Berk & Ron Killman
Biology, College of Arts & Sciences

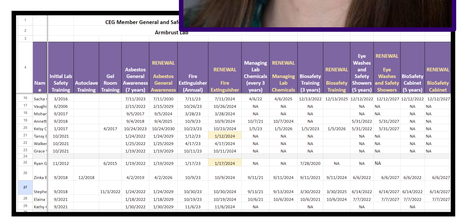
A department usually has one or two people managing all of the teaching labs, which can span across multiple buildings and be used by different instructors every quarter. One of the challenges of these types of spaces is maintaining consistency of safety expectations, practices, and documentation. It can be a drain on resources to try to keep paper copies of safety documents and manuals current in all spaces on a continuous basis. Maintaining safety documents in electronic format makes it easier to keep them accessible and current, and setting up a tablet in each teaching lab is a cost-effective way to provide access to and manage the electronic files.



SAFETY TRAINING ASSESSMENT REPORTS SENT TO PERSONNEL

Rhonda Morales
Oceanography, College of the Environment

Chemical hygiene officers (CHOs) and responsible parties are tasked with ensuring that all personnel complete safety trainings. To track and notify personnel of training needs in an efficient way, this CHO tracks everyone's required safety training for multiple labs in a large spreadsheet and sends out reminders to complete trainings on a quarterly basis.



INCLUDING INSPECTION FINDINGS IN SAFETY ORIENTATIONS

Daniel Moralejo / Juul Lab
Pediatrics, School of Medicine

Safety orientations are a key part of familiarizing someone with the resources and hazards present in a workspace. After a lab has an inspection, it is important to inform all personnel about any practice or management changes needed for corrective action. Including this information in safety orientations helps new personnel be aware of new practices that the lab is trying to establish or maintain and shows a commitment to safety culture in the workplace.