

ORIENTATION TO LABORATORY SAFETY

COURSE OUTLINE

- **Safety in the laboratory is important.**
 - The laboratory can be a dangerous place.
- **We all seem to have an overwhelming urge to do the "wrong" thing while working.**
 - Tend to take shortcuts.
 - Often ignore safety precautions.
- **It is important that you learn laboratory safety rules.**
 - There is a great deal you should know.
 - Your supervisor/safety instructor will help you.
- **Types of safety considerations and issues you may be dealing with include:**
 - Safety Data Sheets (SDSs).
 - Your facility's "chemical hygiene plan".
 - Biologically infectious materials.
 - RCRA and TOSCA.
 - Lock-out/tag-out.
 - Respiratory protection.
 - Fire safety.
 - First aid and CPR.
- **An instructor and written plans are only "sources" of safety information.**
 - The ultimate responsibility lies with you.
- **Plan experiments carefully.**
 - Assemble all materials.
 - Get SDSs as well.
 - Select proper personal protective equipment.
- **Personal protective equipment is especially important.**
 - Know where to find it.
 - Know which areas require it.

- **Eyewear is an important type of protective equipment.**
 - It ranges from safety glasses to face shields.
 - Wear the type or combination right for the job.
 - Remember, street glasses are unacceptable.
- **Lab coats are also personal protective equipment.**
 - They can shield you from accidental splashes.
- **Selecting proper gloves is important, too.**
 - Choose them according to the hazards involved.
 - Consult the SDS for recommendations.
- **An air-purifying respirator may also be needed.**
 - You must be properly instructed to use one.
 - The respirator should be fit tested.
 - An improperly fitting respirator will not protect you.
- **Self-contained breathing apparatus (SCBA) can also be used.**
 - They are very sophisticated equipment.
 - They should not be used unless you have been trained on them.
- **Safe shoes are also important in the lab.**
 - Don't wear shoes with "open toes."
 - Safety shoes may be required.
- **Check all PPE before using it.**
 - If it is cracked or worn, discard it.
- **Remove PPE before leaving your work area.**
 - Also wash your hands (this limits the potential for contamination).
- **Know how to work safely with your laboratory equipment.**
 - Check each piece before setting up.
 - It must be clean and in proper working order.
 - Cracked glassware must be replaced (pressure could shatter it).
- **If your procedure requires specialized equipment/ containers, find them.**
 - Makeshift substitutes can be dangerous.

- **Keep the lab area clean and clutter free.**
 - Report/correct any unsafe conditions or actions.
 - Misplaced equipment/furniture can cause slips and falls.
- **Utilize proper local ventilation controls, such as lab hoods.**
 - Used correctly, air flow effectively confines and removes released vapors.
 - Test hoods to make sure air flow is working.
 - Select the right type of lab hood for your procedures (for instance, biological safety cabinets can confine potentially infectious aerosols but might not work well for chemicals).
- **Know proper working procedures for your hoods.**
 - Work at least six inches inside the hood.
 - Keep the sash as low as possible.
 - Never interfere with the air flow.
- **Proper chemical storage is very important.**
 - Don't use bench-tops or hoods.
 - Improperly stored containers are easy to knock over.
- **Flammables require special consideration.**
 - Collect small quantities in UL listed containers (with spring-loaded caps).
 - Place amounts greater than one liter in flammable storage cabinets (remember to lock the door).
- **Regulations exist for the safe use of compressed gas cylinders.**
 - They should be located away from sources of flame or sparks.
 - They should be strapped to benches, when they are positioned close to them.
 - Consult your supervisor regarding the number of cylinders that can be safely stored in your lab.
- **All chemical containers must be correctly labeled.**
 - This identifies the contents for all users.
 - Make sure to write out (not abbreviate) proper names.
- **Know your company's policy on handling chemical and infectious waste.**
 - Plan for its disposal before you begin experimentation.
 - A disposal mistake could cause severe problems.
 - Ask your supervisor or safety professional if you have questions.

- **You should know what to do in case of a laboratory accident.**
 - Dial 911?
 - Alert on-site emergency responders?
 - Learn your evacuation routes.
 - See your instructor regarding emergency systems and fire alarms.
 - Know the location of emergency equipment.
- **You should also be prepared to deal with chemical spills.**
 - If the spill involves a flammable substance, turn off sources of ignition.
 - Know correct cleanup procedures.
- **Eye washes and safety showers are important if you can be splashed.**
 - Flush affected areas for at least fifteen minutes.
 - Report the incident.
 - Call for medical help.
- **Coming into a new lab can be stressful and exciting. There are always:**
 - New materials to deal with.
 - New procedures to learn.
 - New people to meet.
- **With it all, you must do your best where safety is concerned.**
 - If you have a question, find out who to ask.
 - Get it right... from the start!