1. RULE # 1
   1. Failure to comply with the rules for working in the chemistry laboratory space will forfeit your “privilege” of conducting work in this space. Please read these rules carefully and make sure you understand them and make every effort to comply with them.
2. AFTER HOURS
   1. You are not permitted to work on potentially hazardous procedures in the chemistry lab after work hours by yourself. If you absolutely have to conduct hazardous work after-hours, you will need to get another person to come in so you are not alone.
3. ATTIRE
   1. You must wear appropriate lab attire when working in this lab
      1. This means no sandals or open shoes that expose your feet. Ask yourself, if concentrated sulfuric acid falls on my foot today do the shoes I have on offer me sufficient protection? If the answer is no, don’t wear those shoes.
      2. No shorts, skirts or dresses. There must be a protective layer on your legs.
      3. If you are “working” or if anyone is “working” with chemicals or microorganisms in the lab, you must put on a lab coat.
4. KNOWLEDGE
   1. Before working with any chemical in this lab you must familiarize yourself with its hazards. Be prepared to answer questions from Dr. DeWitt on how you plan to dispose of the chemical and whether or not the chemical is hazardous. If you cannot answer these questions you will be suspended from working in the laboratory.
5. BENCH TOP RULES
   1. No bench tops are “permanently” assigned to anyone. This is because no one works 24/7. Be aware that other people may work in the same area.
      1. Lab benches in the Chemistry Laboratory are spaces for working, not for storing. As such every effort should be made to keep laboratory space clean and clear of clutter. This will allow other people to share space, if necessary.
   2. If you are conducting chemical tests, you must work on an absorbent paper that can soak up spills and protect lab benches. If you notice, the lab benches in that lab are stained and damaged. This is because people did not work on absorbent paper.
      1. Dirty and grossly contaminated absorbent paper should be disposed and not left on the bench. It is ok to leave absorbent paper with minor stains. It is not ok to leave absorbent paper that has been used to contain a spill.
      2. Absorbent paper is not “provided” by the lab. You must request this as a supply from your professor.
   3. If you are conducting microbiological plating, absorbent paper is not required.
   4. You should clean and clear your bench space at the end of each working day. *If* you need to keep a piece of equipment/glassware on the bench because you are using it *every* day, then that is permitted.
6. SOLVENT AND PERCHLORIC ACID HOODS
   1. Hoods are like lab benches, they are for working, not for storing chemicals. Hoods must be kept free of clutter. Chemicals should be stored under the hood, not in the hood.
   2. All instructions for working on Benches, also apply to working in hoods.
7. CHEMICALS AND SOLUTIONS
   1. In order to keep lab space free of clutter, please keep solutions, chemicals and equipment (if possible) stored in assigned drawer/shelf space. Even temporary leaving of solutions on the bench when you are done working is not recommended. If you find you do not have enough space to properly store your solutions, talk with Dr. DeWitt.
   2. All prepared solutions should be labeled with the name of the solution, your initials, and the date it was prepared. Solutions should never be stored in a volumetric flask. If you have used a volumetric flask to prepare a solution you **MUST** transfer it in to a container. Even “temporary” storage of solutions in volumetric flasks is not allowed. Volumetric flasks are designed for the “preparation” not storage of solutions.
   3. All chemicals kept in the wet chemistry lab must be labeled with the date they were either received or prepared.
   4. If you are transporting Hazardous ACIDS or CAUSTIC material, you MUST use a secondary container.
   5. For every procedure you run, you must have a “plan” for the proper disposal of the chemical waste generated. If you do not know where to dispose of the waste, then you must talk with the **Chemical Safety Officer** prior to conducting your analysis.
8. GLASSWARE AND EQUIPMENT
   1. If you use glassware/equipment in the chemistry laboratory and break it through negligence, your professor will be responsible for replacing or fixing the equipment. This means you need to obtain proper instruction on “how” to use a piece of equipment prior to using the equipment. If you are unsure, ASK! Some of the equipment in that lab costs more than your car to replace! Ignorance is not a valid excuse.
   2. If there is a log for the equipment, you must fill in the log **every** time you use the equipment.
9. CENTRIFUGES
   1. There are several high speed centrifuges in the laboratory. High speed centrifuges are extremely dangerous. If you look in our high speed centrifuges and if you look at the rotors you will notice they are scraped-up. This is because a student failed to secure the lid to the centrifuge rotor. When this occurs at high forces the rotor floats off the spindle and bangs around the centrifuge. Replacing a bent spindle costs 10’s of thousands of dollars. A rotor if ruined by scrapes and chemicals spilling in it can cost >$6000 to replace. The High speed and Ultra high speed centrifuges easily cost $50,000 – $100,000 dollars. You DO NOT want to be the one who breaks it due to ignorance and negligence.
   2. Always clean and completely dry the rotor after EVERY use. NEVER immerse and “soak” the rotor portion of a swinging bucket rotor because the pins will rust. Both fixed angle rotors and swinging bucket rotors should be stored upside down, to drain after thorough cleaning and rinsing.
   3. Be sure your centrifuge tubes are “Rated” for the force you are using them. Not all centrifuge tubes can withstand the same forces.
   4. Always balance the rotor properly. Use a precision scale for most work. Always balance the tube with a medium that is identical to that being centrifuged, i.e. do not balance an alcohol solution with water, or a dense sucrose solution with water only -- the distribution of the densities will be incorrect. For swinging buckets, be sure the buckets are weighed with their caps in place, that the seals are intact and that the caps are secure. Be careful in the placement of tubes within a rotor to ensure proper balance - check the manufacturers guides for complex rotors that hold multiple tubes.
   5. Note: If properly balanced and used, the rotor should accelerate smoothly and with a constant change in the pitch of the motor sound. Any vibrations, or unusual sounds should cause the cessation of operation IMMEDIATELY by the operator. **NEVER** leave the centrifuge until you are certain that it has reached its operating speed and is functioning properly. All rotors go through a minor vibration phase when they first start. There will be a minor flutter when the rotor reaches this vibration point - do not confuse this with a serious vibration caused by imbalance. If in doubt, halt the centrifuge and get assistance.
10. MICROPIPETORS
    1. You must be able to demonstrate to Dr. DeWitt you know how to use them, prior to being allowed to use any of the micropipettes in the chemistry laboratory.
    2. You should always test the accuracy and repeatability of a micropipette to deliver a volume prior to using it. The easiest way to accomplish this is weigh repeated (at least 3) measurements of water.
    3. If you accidently “suck” your fluid up into the working mechanism of a micropipette, immediately flush the mechanism out with distilled water. Once the suction part of the pipette is wet, you must let it dry before using it again.
11. BALANCES
    1. Analytical balances (3+ decimal places) are extremely sensitive instruments. Prior to using ANY balance you should first check that it is measuring weight correctly. This can easily be done with precision weights. There are some available, you must request to utilize them.
       1. NEVER touch precision weights with your bare hands. You must ALWAYS use tweezers to handle the weights.
12. The last decimal place in ANY balance is likely not accurate. It is only an “estimate” of the value. A three place balance (0.001) can only really measure accurately to 0.01 g.
13. You must leave the balance as you find it…. Clean. If you spill powder in the balance you should use a soft brush to gently sweep the powder off the balance. If you spill liquid/paste on/in the balance, this will require more extensive cleaning and removal of the pan. If you have never done this before, get help. Just wiping-up the visible spill is not sufficient!
14. pH METER
    1. The probe on a pH meter is VERY DELICATE AND EASY TO BREAK!
    2. The probe should ALWAYS be calibrated EACH DAY you plan to use the pH meter.
    3. Use with magnetic stirrer
       1. You should never place a probe in a solution and then turn on the magnetic stirrer.
       2. Always turn on the stirrer first, THEN place the probe in a place where it will not be hit by the stir bar. Stir bars BREAK probes!
15. WATER INCUBATORS
    1. Only distilled water may be placed in water incubators. This is to prevent “scale” and mineral hardening issues. Before using a water bath, LOOK, at the water. Does it look contaminated? Is something growing in it? If so, you must replace with “fresh” water.
    2. When you are finished with an incubator you **must** drain the water out….completely… and return the incubator to its proper place of storage.
16. SINKS AND OVENS
    1. Sinks in the chemistry lab are for washing and drying dishes. They are not for “storing” your glassware when you are finished with them. There are multiple users in the chemistry lab and they all will need access to sinks and the glassware you are using. Glassware should not be left in the drying station more than 24 h. You need to make time to put your glassware back in its proper storage area.
    2. Ditto for ovens. Ovens are **not** places to permanently store anything. They are for drying.
17. STORAGE SPACE: CABINETS, DRAWERS, SHELVES
    1. If you notice, all items stored in the lab have a “proper”, labeled place for storage. If you pull a piece of equipment/glassware out of its storage space you must put it back in the space when you are done. Leaving a piece of equipment on the bench because you “might” use it in a couple of weeks or a month is not allowed.

I ACKNOWLEDGE I HAVE FULLY READ, UNDERSTOOD AND AGREE TO COMPLY WITH THE SOP FOR WORKING IN THE CHEMISTRY LABORATORY:

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