

General  
Instructions  
for  
Chemistry  
Lab Instructors

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by section numbers

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**1. We have four chemistry lab rooms:**

PS 149 - used for CHM 152/54LL and 107LL and some CHM 130 lectures

PS 150 - used for CHM 151LL

PS 153 - used for CHM 138, 230, 235/36LL

PS 155 - used for CHM 130LL

**2. Available Equipment by lab:**

|        | Electronic Balances | Hot Plate/<br>Stirrers | Spec 20"s<br>Genesys | Vortex | Centrifuge | Ovens |
|--------|---------------------|------------------------|----------------------|--------|------------|-------|
| PS 149 | 7                   | 24                     | 12                   | 0      | 6          | 1     |
| PS 150 | 8                   | 24                     | 12                   | 12     | 0          | 0     |
| PS 153 | 8                   | 24                     | 0                    | 0      | 0          | 1     |
| PS 155 | 8                   | 24                     | 0                    | 4      | 0          | 3     |

**3. Available Media Equipment by lab:**

PS 149 ,PS 150 and PS155 will have media equipment on the instructor's desk

PS 153 will have a robocart

The available equipment is: Projector

CD player

Video player

Computer --PS149 & PS150 have an **IBM**

PS 155 has a **MAC**

There are speakers to adjust the sound for the video. Please remember to turn volume down when done with the video. The bottoms for on/off are on the back of the speakers. This will eliminate the next instructor from being shocked by a loud "talking" computer. The remote control for these should not be removed from the room.

**4. Computers Available:** PS149 - 12 laptop computers (locked in lab cabinet) and 1 laser printer

PS150 - 12 desktop PC windows computers and 1 laser printer

PS153 & PS155 share 12 Mac windows computers and a laser printer in PS154

PS149 and PS150 share 12 laptop computers locked in PS145

If you experience computer problems, call the "Help Desk" from your lab phone and report the problem. Also let someone in the stockroom know what problems you are having. The printer paper is available in each lab room in large drawers labeled "computer paper". If the toner needs to be added, this must also be reported to the Help Desk.

5. Each lab has a **telephone** (for internal use only). Next to the phone is a list of department phone numbers you might need and an emergency booklet with information needed if an emergency should arise. If you step out of the lab, please inform your students at what number you can be reached. If you need to make an outside call while in lab, you may use the cordless phone from the stockroom office.

6. The **lab doors** will be locked when not in use. The lab instructors will unlock the lab doors when ready for lab (10 min. early when possible) and lock them at the end of the lab session. When all students have left the lab you may also leave, even though the lab time allotted has not expired.

7. No students are allowed in the stockroom area. Please make sure that no students follow you when you enter this **restricted area**.

8. We have direct **DI water** supply in each lab. Please advise your students to use it sparingly. They should use DI water when prepping solutions or rinsing glassware but not when washing glassware. The students have DI wash bottles at their lab stations.

The DI faucets need special attention. Please advise your students not to over tighten the faucets. They should only be finger tight. The plastic parts break easily.

9. The icemaker is located in the stockroom by the main entrance. Because of the different starting times of labs, we cannot estimate the time that **ice is needed in lab**. Please let us know when it is needed or if possible get it yourself when needed.

10. The stockroom personnel will try to keep the **paper towel** dispensers full. If you find a need to replace towels during a lab, the key needed to remove the roller is located on the window looking into the stockroom at each lab. There are paper towels located in storage cabinets in each room. The cabinets are labeled "paper towels".

11. **Unknowns** should be given out in numerical order. If not, all students in one lab may end up having the same unknown. Students should work individually. After students have taken their unknowns, return the remaining unknowns to the bottom of the cart. Please remind students to empty the unknown vials before they return them to the designated trays. The purpose of this is to stop the students from mixing used vials with unused vials. The decodes for all unknowns are available in the top drawer in the stockroom office.

12. **Waste** bottle is always in one of the hoods. Please remind students to use it.

13. **Lab equipment** is provided in different ways from lab to lab. (see following details) Equipment replacements are in drawers or cupboards next to the instructor's desk in each room. Please do not allow the students to help themselves to equipment. Many missing items can first be found in their neighbor's drawer before issuing a replacement item. Have students look there first.

14. **Special lab equipment** such as: burets, pipets, timers, thermometers, etc., will be on a cart next to the instructor's desk. Ask students to clean and then return the items to this cart when they are finished using them.

**15.** Some lab experiments require **plastic disposable pipets**. There will be a box available in lab. Please remind students that the pipets are disposable and they should not be returned after they are used. We do not want to mix used and unused pipets.

**16.** At the start of each semester, **folders** are placed on a cart in the stockroom by the lab windows. Each lab section has its own folder labeled by the lab number and the instructor's name. Inside the folder you will find the following:

- Lab schedule - to be given to student - this includes a safety and policy training sheet to sign
- Organic students will get drawer inventory sheets needed for "check-in"
- Assumption of Risk form - this form will be found in the lab manuals(or can be downloaded). This needs to be completed by student and returned to folder (be sure both sides are completed) - only emergency info is optional - we need name, section #, date, and GCC ID# on back of form
- It is the instructor's responsibility to make sure the all forms are completed properly. Late students should be taken care of the day they show up for lab. Be aware that the legality lies with you, the instructor. The one student who does not sign his form may be the one who gives you trouble later.

These folders are kept by the window for the first two weeks. After two weeks they may be found in a drawer in the stockroom office.

### Lab Safety

**17.** To avoid accidents in lab, instructors do a **safety training** at the beginning of each semester. This includes but is not limited to:

- department safety rules
- extra safety information in lab manuals
- students view the ACS video "Starting with Safety"
- instructors explain the "hazard identification system" in the lab manual ( this chart is posted in each lab)

Students who miss the safety orientation will be able to view the film at the Media Center in the Library. They will also have to read the other requirements listed above before they sign and give you their "assumption of risk" form that needs to be placed in the folder. These "late" students must sign a copy of the following form and staple it to the assumption of risk form:

|   |           |
|---|-----------|
| Student Name(print):  |           |
| Course:   | Section#: |
| Instructor:   |           |
| In lieu of the safety training given during lab, I have:    |           |
| 1. viewed the safety film                                   |           |
| 2. read the safety update in the lab manual                 |           |
| 3. read and understood the department safety rules          |           |
| 4. know the location of the safety equipment in my lab room |           |
| Student Signature:  | Date:     |

18. We all agree that there is a need for more safety discussions at the beginning of each semester. Students are spilling acids and bases or other harmful chemicals and they are not cleaning them up properly. This is dangerous to them as well as their fellow students who use the same space. The safety video is not enough. Please give **additional precautions before each lab**.

19. **Safety info for instructors:**

- View the video "Start with Safety" 30 min.
- View the more detailed film "Training Video" from Baker chemicals 45 min. you may take these home to view - these are found in the media cabinet PS135
- Learn the location of the fire extinguisher in your room and in the stockroom
- Learn the location of the electrical breakers and the gas shut-off outside your lab (on stockroom walls)
- Sorry, we do not have an easy way to get to the water shut-off. It is located under the heavy floor plates in the trenches.
- Become familiar with the Emergency Quick Reference Guide that is by the phone in the lecture rooms and in the labs.
- The following is a copy of the **GCC Accident Reporting Procedure**:

Life-Threatening Emergencies

- Dial 911 (The extra 9 for an outside line is not required). There is no system in place to let the paramedics know exactly where on campus you are located. Therefore you need to stay on the line and give them directions.
- Immediately call Security (53535 or 53536) for assistance. They will direct the paramedics once they arrive on campus. It is standard procedure for the paramedic operator to confirm the 911 emergency with Security as they dispatch, so do not delay! Also, Security will take the first report. Then the department must complete the appropriate paperwork (see below).

Non-Life-Threatening Emergencies

Dial Security (53535 or 53536) first, and then let them place the "911" call. Again, Security will direct paramedics and handle the paperwork (dept, completes).

Injuries Requiring Professional Medical Attention, but Not on an Emergency Basis

- If in doubt about the seriousness of the injury, call Security and they will make the decision whether or not to call the paramedics. Note: there is no charge for the paramedics to come to campus; there is a charge to the patient if they transport.
- As far as possible, have students treat themselves. You may dispense whatever is needed from the stockrooms first aid kit.  
Have student rinse cuts, apply pressure, etc. under your direction. This minimizes contact with blood injuries. Call maintenance to wash all surfaces (including sinks and drains) contaminated with blood with commercial bleach (Clorox, etc.)

- Have students arrange their own transportation to a medical facility if they do not want paramedic transportation (at a charge). Security will not transport.
- Fill out paperwork as listed below and give the copies to the stockroom office.

**A.** Students taking the course should obtain a "Student Accident Form" from the stockroom. Extra copies are available at the Student Activities Office (open 7AM-7PM). If the injured student refuses medical treatment, then the student must "sign off" on this form.

**B.** Student employees and **GCC employees** must complete a short form of the "Worker's Comp." form. These forms are in the stockroom office. Security has extras. Turn in forms to Security. If medical procedures are required, a longer "Worker's Comp." must be obtained from Security. Security will assist, as requested, in the completion of forms.

**20. Make-up** for missed **labs** must be done during the week the lab is scheduled (see department policy). Students can look at the lab schedule, posted on the bulletin board in the lab room or on the GCC/chem web sight, to see when other sections meet.

**21.** Each student pays a **lab fee** when they register. This fee covers chemicals, DI water, and other disposable items used such as filter paper, pipets, Q-tips etc. This fee does not cover breakage! Students must pay for the items they break. If the breakage charge is under \$2.00 they can pay us directly. If the student cannot pay at the time of the breakage or if the breakage charge is over \$2.00, you must have them fill out a debt form(see below) Breakage forms are found in a box by the stockroom window. The instructor will give the student the back copy of debt form and the front copy will be given to the stockroom to be sent on to the cashier. The breakage fee will not be registered by the cashier until the following week. Tell students to pay the debt at the cashiers window next week.

See copy of form in each lab by the window to the prep room.

**22.** During the semester we make corrections and comments in our original **Lab Manuals**. Any help in this direction is really appreciated. Please make the changes you suggest, in red. These manuals will be on the cart by the stockroom window labeled "Do not remove". As a general rule, we send the changes to the publisher in late spring and we have revised lab manuals in fall. If you teach a lab in the spring, check our corrected copy for any important changes. Confirm with stockroom staff.

**23.** At the end of semester our students have the option to take a written **lab final test** to replace a missing lab or, at your decision, a low score. These are common exams, multiple choice questions. We offer the same exams (with some insignificant changes) from year to year, so please make sure students do not write on the exam or take them home. Exams are filed in the stockroom. Ask the lab tech if you need to check them earlier in semester. An Exception is found in 151LL were students take a lab midterm and a lab final.

**24. Now for the Miscellaneous Miscellanies!!!**

**A.** Maintenance has informed us that the interior and exterior doors should remain closed or opened wide. Using the doorstopper to partially open the door will negatively affect the hydraulic closer. So wide open or shut tight please.

**B.** If you are a new instructor and you are unsure about a lab, or this is the first time you do a particular lab, try to visit another instructor's lab and sit in for the lecture part. The stockroom will also be glad to assist you whenever possible.

**C.** If you are preparing a demo for your lecture, the stockroom will be glad to help you. Give us your list of what is needed and we will get it ready for you. If possible give us a 24hour notice. If you know where items are in the stockroom, you may put the materials together yourself. When done with the demo, place a "put away" sign on the cart and the stockroom will take care of everything. Please do not leave any unlabeled chemicals on the cart or in the hood. We need to know how to dispose of the waste properly.

**D.** In the stockroom we have on display models of orbitals. Please use them very carefully. They break easily and are very expensive to replace. Also we have crystal models ready for demo. Please have your demo cart ready with a "save" sign left in the stockroom just in case another instructor will need to use them in the mean time.

**G. Media available in hallway, PS135:**

Molecular models, videos, laser disks, forms(drop/add, request for restricted withdrawal, scantrons), extra pencils and calculators, periodic tables, scrap paper, CRC handbooks.

**H.** Student goggles should be checked to be sure they are OSHA approved. (biology protective glasses are not OK)

**I.** If your students need to use the ovens, an "on/off oven" sign will be placed on the instructor's desk.

## Lab Organization and Orientation

### 25. PS 155 CHM 130LL

#### Equipment and Reagents

General equipment and reagents are placed in boxes at each station. Special equipment and unknowns are on a cart by the instructor's desk. Some special materials may be on a cart in the middle of the lab ( such as food for water of hydration) or on a cart on the side of the room.

#### Computers and Media Equipment

There are 12 Mac computers. Students work in pairs. Each student puts his/her own data in, and gets a print out for each student. The Mac computer on the Robocart can be used for demos, such as graphical analysis, spreadsheets, etc. Robocart also has an overhead projector.

#### Goggles

Students must purchase their own goggles. Make sure these are not the Biology goggles but are the OSHA approved goggles. See the samples posted(the first two weeks) in both the lecture and the lab rooms. We have one drawer assigned to each lab section by instructor's name, section #, and time. It is up to the instructor to unlock this drawer at the start of the lab and lock it when the lab is over.

Don't forget to remind students to take the goggles home on the last lab session.

Students can rent goggles for a \$2 fee per lab. There is a sign out/in sheet by the stockroom window. Be sure to hand the student an antiseptic towelette to clean the goggles before they put them on. This should help to prevent skin infections. For hygiene and health reasons, we want to encourage students to buy their own goggles.

If students do not have the \$2 fee for rental, have them fill out a debt form as previously explained in part 18 of this booklet.

#### Special Safety

Burners should be used at the middle of the bench to avoid an open flame behind students from an adjacent table. Broken glass should only be placed in the containers specially marked "broken glass".

#### Cleaning

Students are expected to clean lab glassware and return it into the box. Train them not to mix equipment in one box with reagents in a second box.

## 26. PS 150 CHM 151LL

### Equipment and Reagents

Expect to find boxes with "general equipment" in drawers on the North side of each lab bench. Workstations and drawers have been numbered. Instructors should assign students a lab station number. Students should use the equipment in that box only. We hope the assigning of numbers will make the students more responsible in returning the equipment to its proper place.

The equipment will change from week to week depending on the lab for that week. The inventory for the boxes will be placed on the whiteboard. Please train your students to return their equipment cleaned and ready to use by the next class. The box should be returned to the same drawer it came from. When students work individually, all 24 drawers will have boxed equipment. When students work in pairs, only 12 drawers will have equipment. They will be the first three drawers at each bench.

### Metal Equipment

Additional metal equipment, such as clamps, burners, beaker tongs, crucible tongs, wire gauze etc., will be found in labeled drawers on the West side of the lab (between the two hoods). Special equipment such as burets, pipets, thermometers, timers, etc., will be on a cart next to the instructor's desk. Try and remind the students to return special equipment to the cart and not put the item in their boxes.

### Reagents

Reagents will be at the 4 dispensing stations.

### Computers and Media Equipment

There are 12 windows desktop PC's in the lab room. Instructors can demo from the instructor's computer. All media is located at instructor's desk.

### Goggles

Students must purchase their own goggles. Make sure these are not the Biology goggles but are the OSHA approved goggles. See the samples posted (the first two weeks) in both the lecture and the lab rooms. We have one drawer assigned to each lab section by instructor's name, section #, and time. It is up to the instructor to unlock this drawer at the start of the lab and lock it when the lab is over.

Don't forget to remind students to take the goggles home on the last lab session.

Students can rent goggles for a \$2 fee per lab. There is a sign out/in sheet by the stockroom window. Be sure to hand the student an antiseptic towelette to clean the goggles before they put them on. This should help to prevent skin infections. For hygiene and health reasons, we want to encourage students to buy their own goggles.

If students do not have the \$2 fee for rental, have them fill out a debt form as previously explained in part 18 of this booklet.

### Special Safety

The only "goggle free" area is the very East side (triangular tables). Broken glass should only be placed in the containers specially marked "broken glass".

### Cleaning

Washing glassware should be done at one of the 4 large sinks. Do not use the small cup sinks in the centers of the lab benches. These are for distillations only. Clean glassware goes back into the boxes or back on the cart. Metal equipment goes back into the big drawers and not mixed with the glassware in the boxes. Wet glassware may cause the metals to rust!

## **27. PS 149 CHM 152/54LL**

### General Equipment

Expect to find boxes with "general equipment" in drawers on the North side of each lab bench. Workstations and drawers have been numbered. Instructors should assign students a lab station number. Students should use the equipment in that box only. We hope the assigning of numbers will make the students more responsible in returning the equipment to its proper place.

### Metal Equipment

Additional metal equipment will be found in labeled drawers below the general equipment drawers. Special equipment such as burets, pipets, thermometers, timers, etc., will be on a cart next to the instructor's desk. Try and remind the students to return special equipment to the cart and not put the item in their boxes.

### Reagents

Reagents will be at the 4 dispensing stations.

### Computers and Media Equipment

There are 12 laptop windows computers available. They are locked in a portable cabinet in PS145. The key for this cabinet is available from the stockroom. All media equipment is located at the instructor's desk.

### Goggles

Students must purchase their own goggles. We have one drawer assigned to each lab section by instructor's name, section #, and time. It is up to the instructor to unlock this drawer at the start of the lab and lock it when the lab is over. Don't forget to remind students to take the goggles home on the last lab session.

Students can rent goggles for a \$2 fee per lab. There is a sign out/in sheet by the stockroom window. We want to encourage students to buy their own goggles for security and safety reasons. If students do not have the \$2 fee for rental, have them fill out a debt form as previously explained in part 18 of this booklet.

### Special Safety

The only "goggle free" area is the very West side (triangular tables). Broken glass should only be placed in the containers specially marked "broken glass".

### Cleaning

Washing glassware should be done at one of the 4 large sinks. Do not use the small cup sinks in the centers of the lab benches. These are for distillations only. Clean glassware goes back into the boxes or back on the cart. Metal equipment goes back into the designated drawers and not mixed with the glassware in the boxes. Wet glassware may cause the metals to rust!

### Lab to Lecture to Lab

This lab is also used as a lecture room. For lecture purposes, the 4 mobile tables will be pulled out and the chairs moved to one side of the bench (to face the whiteboard). The stockroom will do their

best to arrange the room for lab/lecture format but sometimes we will need your help and your students help.

## 28. PS 153 CHM 138,230,235,236LL

### Equipment and Reagents

Students will have their own glassware in assigned drawers. Students must fill in the label cards on their assigned drawer with the following information:

CHM \_\_\_\_ Day \_\_\_\_ Time \_\_\_\_  
Name \_\_\_\_ Instructor \_\_\_\_\_

CHM 138, 230 drawers are to be unlocked/locked by the instructor with a master key.

CHM 235, 236 students have a drawer at their station. Each student will be issued a combination for lab locker. It is student responsibility to keep it confidential and to lock the drawer at the end of lab period. See extra info in Lab Schedule. On the west side of the room expect to find large drawers equipped with general equipment to be shared. These have been numbered 1-24. Instructors should assign students a lab station number. Students should use the equipment in that box only. We hope the assigning of numbers will make the students more responsible in returning the equipment to its proper place. The inventory list for large equipment is posted above these drawers. Metal Equipment is located in the bottom drawers at each station. Special equipment (such as hoses, vacuum traps, burners, large filtering flasks etc.) is available around the room in labeled drawers or cabinets. Try to familiarize yourself with their locations. Unknowns and Special Equipment will be available on the middle bench or on a cart. For the 235/236 labs there will be a cart with Pasteur pipets, cotton, glass wool, and markers. Reagents will be in 3 hoods, the fourth hood is for the waste.

### Computers and Media

12 Mac computers can be shared with CHM 130LL in PS154. A Mac computer and media equipment is on a robocart also shared with 130LL.

### Goggles

Students must purchase their own goggles. Make sure these are not the Biology goggles but are the OSHA approved goggles. See the samples posted (the first two weeks) in both the lecture and the lab rooms. We have one drawer assigned to each lab section by instructor's name, section #, and time. It is up to the instructor to unlock this drawer at the start of the lab and lock it when the lab is over. Don't forget to remind students to take the goggles home on the last lab session.

Students can rent goggles for a \$2 fee per lab. There is a sign out/in sheet by the stockroom window. Be sure to hand the student an antiseptic towelette to clean the goggles before they put them on. This should help to prevent skin infections. For hygiene and health reasons, we want to encourage students to buy their own goggles.

If students do not have the \$2 fee for rental, have them fill out a debt form as previously explained in part 18 of this booklet.

### Vacuum Pump & Air & Nitrogen

The vacuum pump is located in the mechanical room PS152, West of this lab. Access is outside and the key is in the key box located in the stockroom. The pump should be on "auto" when needed.

Please remember to turn it off when done and return the key to the key box.

Air when needed is turned on from the same mechanical room.

Nitrogen tanks are located in PS147. There is a valve that needs to be turned on in the hallway to PS150. Please turn valve on only while students need nitrogen. Students will waste it if valve left open too long.

### Safety Special

There is NO goggle free area in this lab. Students can step into PS154.

Used pipets, micro or boiling tubes should all be discarded in the broken glass container. Broken glass should only be placed in the containers specially marked "broken glass". There is one on each corner of the lab.

Do not open the doors for fresh air. The airflow is calibrated to withdraw lab fumes through the 4 hoods. Instructors can use one of the Mac computers in PS154 while still watching the students through the small window.

### Cleaning

Washing glassware should be done at one of the 4 large sinks. Do not use the small cup sinks in the centers of the lab benches. These are for distillations only. Clean glassware goes back into the drawers or back on the cart. Metal equipment goes back into the designated drawers and not mixed with the glassware in the student's assigned drawers. Wet glassware may cause the metals to rust!

### Al Blocks

Do not return the Al blocks to the drawers . Leave them on the hot plate to cool down. A fire may start if a hot block is placed into the drawers.