**1.1 Safety**

Safe practices in the biochemistry laboratory are of great significance. Students must adopt safe and

skillful methods while working in the lab. To achieve this goal, the student must obtain the

prerequisite knowledge of properties of materials present in the lab and must be acquainted with

different hazards and harmful effects associated with their improper handling.

**1.1.1. Regulations**

1- Throughout your stay in the laboratory you must wear safety goggles if you are dealing with dangerous chemicals

2- Immediately inform your instructor in case of any accident.

3- Do not eat, drink, chew, or smoke in the laboratory.

4- Do not depart from the lab leaving an experiment unattended. If you need to leave the lab you

must inform your instructor before leaving the lab.

5- After finishing the experiment turn off all the equipments, clean your work bench and reshelf all

the equipments or chemicals.

6- Not sticking to these rules will result in instant removal from the lab.

**1.1.2. Precautions**

1- You must come to the lab with a serious awareness of personal liability and utmost consideration

for others in the lab.

2- You must acquaint yourself with safety equipment location, acid-base neutralizing agents, eye

wash, fire extinguisher, emergency shower, broom & dustpan and broken glass container.

3- You must listen carefully to all the instructions given by your instructor. If you are unsure of

anything, always ask your instructor.

4- You must immediately clean all chemical spills.

5- While handling the chemicals you must wear gloves otherwise some chemicals may result in skin

irritation.

6- While handling all electrical and heating equipments extra precautions must be taken to prevent

shocks and burns.

7- Do not handle broken glassware with your bare hands.

8- You must wash your hands with soap after finishing the experiment.

**1.1.3. Personal clothing**

Selection of clothing for the laboratory is generally left to the discretion of the student. However,

due to the harmful nature of some chemicals, it is in the best interest of the student to wear

proper and suitable clothing. You must wear a lab coat to help keep clothes protected. Open toed

shoes must not be worn because they cannot protect you against chemical spills. Long hair

should be tied back to avoid interference with motion or observation.

**1.1.4. Equipments**

Equipment must be placed in a safe and secure manner. Hot plate must be placed in safe location

and kept away from the edge of the bench to reduce chances of body contact.

**1.1.5. Glassware Handling**

Glassware in the lab is generally delicate and fragile, and if not handled properly, may cause

serious injuries. Do not use any chipped or broken glassware. After finishing the experiment, all

glassware must be cleaned and kept back at the proper place.

**1.1.6. Acids and Bases**

In metabolism lab experiments you will be using different acids and bases. Hence care must be

taken to avoid skin contact. While handling these chemicals, avoid eye and face contact. In case

of acid or base contact with your skin, wash it with large amount of clean, cold water and inform

your instructor immediately. For your own protection, neutralize acid or base spills before

cleaning them up.

**1.1.7. Laboratory Notebooks**

For all laboratory experiments use a bound notebook to keep record of all primary data and

observations. You must organize your notebook every week before coming to the lab by writing the

title of the experiment on a new page, with important equations or formulae from the lab manual, and

all necessary calculations involving solution preparations, molar masses, etc.

Try to understand theoretical concepts and particular instructions given by your instructor before the

experiment. The lab notebook must have a record of every experiment. The lab notes should be

written in a manner that other people could understand them. Excellent note taking in the lab is an

important skill that can be learned with little effort and practice.

**1.1.8. Guidelines to be followed**

1- Carry your notebook to the lab for each experiment.

2- Number all the pages in sequential order.

3- Use your notebook to record values directly and do not use loose scraps of paper.

4- Mention each measured quantity by its name and indicate the units.

5- Simply strike through the sentence and write the new sentence next to it, if you make a mistake

in your notebook.

6- Tables are very useful to simplify the data entry; they should be prepared in advance before

starting the experiment.

7- Do not depend on your memory and write down all observations for example color and phase

changes, etc.

8- Last but not the least, you must write a brief conclusion of your experiment. It should address

the objectives of conducting the experiment.

**1.2. Guidelines for preparing Laboratory reports**

The laboratory reports are major written assignments and should be written in the form of a scientific

paper. The laboratory reports should contain the following sections:

* Title Page
* Brief Introduction
* Materials and Methods
* Results/Discussion
* References

All of the laboratory reports are expected to be well written, typed in English. Follow the following

guidelines for each section to write a lab report.

**1.2.2. Introduction section:**

This part should consist of any theoretical background information pertinent to understand your report. This

section should be around 30-40 lines.

1.2.3. Materials and Methods section:

In this section you will write the material and methods that you used, you must also mention exact

volumes, amounts, incubation times, and any modifications from the procedure mentioned in the manual.

**1.2.4. Results section:**

In this section of your lab report, you should report all your results that you get from your

experiment such as calculations, exact volumes, amounts, incubation times, etc.). You should present them in

a tabulated form so it will be easy for quick reference. You must number and label all the tables and figures

(graphs, diagrams). This way it will be easy for you to refer to them in your discussion section. You should

also include your sample calculations (if any) in the result section.

**1.2.5. Discussion section:**

In this section you are required to give a thorough description of what happened in the experiment.

The discussion section is also where you interpret your results and make conclusions. You should refer to

your tables and diagrams while explaining your results. You should compare your results to expected values

(calculated or from the literature). Even if you obtained unexpected results, the discussion section is the

section to justify or explain the reasons why you have obtained such results. Please remember how you

interpret your results carries more weight than the results themselves.

**1.2.6. Conclusion section:**

The conclusion section is just a quick overview of what was done and how. However, more

importance is given to the results.

**1.2.7. References section:**

In this section you will provide an alphabetical listing (by first author's last name) of the references

that you actually cited in the body of your report.