



An Institution of
the Society for the Higher Education
of Women in India

Sophia College for Women
Empowered Autonomous

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Lab Usage Policy

1.	Administrative Policy Number (APN): SCWAPN/28	Functional Area: Lab Usage Policy
2.	Brief description of the policy:	Purpose: To establish guidelines and procedures for the safe, efficient, and equitable utilization of laboratory resources. Audience: Staff and Students
3.	Policy applies to:	Staff and Students
4.	Effective from date:	26 th November, 2018
5.	Approved by:	College Development Committee (CDC)
6.	Responsible Authority:	IQAC coordinator
7.	Superseding Authority:	Principal
8.	Last reviewed / Updated:	New Policy
9.	Reason for the policy:	Ensuring security and fostering a culture of accountability and excellence in scientific research and academic scholarship.
10.	References for the policy:	UGC/ NAAC/ University of Mumbai

Introduction

Our Lab Usage Policy outlines the guidelines, expectations, and procedures governing the utilization of laboratory spaces and equipment to ensure the well-being of individuals, the integrity of research, and the preservation of facilities. This policy serves as a framework for promoting responsible conduct, optimizing resource allocation, and fostering collaborative and interdisciplinary research endeavors. By adhering to these guidelines, we uphold our commitment to excellence, integrity, and advancement in scientific inquiry and academic scholarship

Objectives

1. **Safety:** Ensure the safety and well-being of all individuals using laboratory facilities by establishing and enforcing safety protocols, emergency procedures, and hazard mitigation measures.
2. **Resource Optimization:** Optimize the utilization of laboratory resources, equipment, and materials to maximize efficiency, minimize waste, and promote sustainable practices.
3. **Regulatory Compliance:** Ensure compliance with local, state, and federal regulations, as well as institutional policies and guidelines, governing laboratory operations, research activities, and environmental health and safety standards.
4. **Access and Equity:** Promote equitable access to laboratory facilities and resources for all members of the academic community, including students, faculty, researchers, and staff, while accommodating diverse research needs and requirements.
5. **Accountability and Responsibility:** Foster a culture of accountability, responsibility, and professionalism among laboratory users by establishing clear expectations, guidelines, and consequences for non-compliance with the lab usage policy, including disciplinary actions for violations of safety protocols, misuse of equipment, or unethical conduct.

Policy for maintaining and utilizing laboratories

The Science Departments of Sophia College – Chemistry, Life Sciences, Microbiology, Physics, Zoology and Information Technology as well as the department of Psychology from the Arts faculty have undergraduate laboratories. The departments of Biochemistry, Chemistry, Life Sciences and Microbiology have postgraduate laboratories. Additionally, a common research facility called the Suman Tulsiani Research Centre is also available for students and staff. The department head oversees the laboratories within the department. The common facility has a staff incharge.

Undergraduate laboratories have laboratory working timings from 8 am to 4 pm.

Every laboratory/department has one laboratory assistant and 1 - 4 laboratory attendants based on the student number, who help in making the requirements to conduct regular practicals and examinations.

The laboratories are opened and locked by the laboratory assistant/attendants/professors, and the keys are collected and deposited at the reception. Postgraduate laboratories are opened and locked by the PG students.

No undergraduate student is allowed to work without the supervision of any teacher due to safety reasons.

At the beginning of the degree programme, students are briefed about all the safety protocols and regulations necessary for working safely in the laboratories. All students must wear a laboratory coat while working in the laboratory. Students are trained to handle acids and corrosive chemicals under supervision.

Biology students receive training on handling and working with both pathogenic and non-pathogenic microorganisms according to established protocols. Students and staff take complete precautions in handling blood and other biological samples as per the standard protocols. Gloves are worn wherever required.

Microorganisms, blood and other biological samples, culture-containing glassware undergo autoclaving after use and are disposed off safely. The research protocols involving use of animals are approved from IAEC in order to follow the 3Rs (Replacement, Reduction and Refinement) of ethics in animal research. Chemicals are disposed of cautiously according to the standard protocols.

There are disposal bins in every laboratory.

During the initial practical sessions, students are briefed on fire safety measures and instructed to wear appropriate attire for laboratory activities, avoiding synthetic fabrics. It is mandatory for students to tie back their hair while working in the laboratories. Additionally, students undergo training in handling flammable chemicals like absolute alcohol and chloroform. They are also reminded to keep sanitizers and other equipment away from flames or burners. Smoke detectors and fire extinguishers have been installed in all laboratories. Gas pipelines are shut off when not in use and before the laboratories are closed for the day

The subject specific guidelines and rules are also printed in the journals. Students are instructed to read them carefully and sign once they have read them.

Students are not allowed to eat or drink in the laboratory.

Every student is recommended to wash their hands with disinfectant after work or before leaving the laboratory.

Students are instructed to report breakage of materials and any other accidents.

All instruments purchased through various research grants are maintained well and kept covered when not in use, and entries are made in the log book whenever used. Students are trained to maintain and use equipment such as microscopes, and colorimeters with utmost care. Servicing of the instruments is done regularly.

The college has a common science store. The staff- in- charge monitors all purchases. All chemicals, glassware, culture media, instruments and other materials are ordered via the science store by a proper protocol. The material is received from the dealers/delivery men by the storekeeper and it is stored in the science store. The materials are dispatched from the store and collected by the laboratory assistants/attendants of the department. The bill of the material is checked, signed by staff in-charge and submitted to the account's office for payment to the dealer. Entry is made in a log book and record is maintained with the stores. Inventory of the equipment, chemicals and glassware is done at the end of each academic year.

Department wise rules and regulations-

Department of Chemistry:

Maintaining a chemistry laboratory requires strict adherence to safety protocols, cleanliness standards, and efficient management practices. Here's a comprehensive policy outline:

1. Safety Procedures:

All staff and students have to follow safety guidelines before entering the laboratory. These are as follows.

- Tie hair neatly.
- Wear comfortable footwear.
- Loose fashionable clothes are not allowed.
- Lab-coat and safety goggles must be worn at all times.
- Do not carry a matchbox, gas lighter etc.
- Go through the common safety symbols of chemicals displayed outside the laboratory.
- Lab is equipped with a first aid box and fire extinguisher.
- Do not touch or taste any chemical.
- Use a spatula for transferring solid chemicals.
- Mouth pipetting is not encouraged.

- Eating and drinking is strictly prohibited inside the laboratory to prevent contamination and for safety.
- Do not pick up broken glassware by hand.
- In case of any mishap, please report immediately to the staff in-charge.

2. Chemical Storage and Handling:

- Chemical register is maintained by the lab staff which has the date of issue of chemicals from the stores.
- Chemical storage areas are organized, solid and liquid chemicals are stored separately alphabetically.
- Concentrated acids and alcohol are stored separately.
- All heating involving conc. acids or obnoxious reactions are to be carried out in the fume hood.

3. Equipment Maintenance:

- Laboratory equipment regularly inspected, calibrated, and maintained to ensure accuracy and safety.
- Any malfunctioning equipment is promptly repaired or replaced.
- An air conditioned facility is provided in laboratories with costly electronic instruments.

4. Cleanliness and Hygiene:

- Each student is assigned a dedicated locker and is responsible for keeping it clean.
- Students are expected to keep workspaces clean and clutter-free to minimize hazards and facilitate efficient work.
- Working tables are regularly wiped after every practical activity.
- No solid waste is to be disposed of in the sink and separate bins are maintained for glass/broken apparatus.

5. Personal Hygiene:

- All should wash their hands thoroughly before and after working in the laboratory.

6. Documentation and Record-Keeping:

- Accurate records are maintained for all experiments, including procedures, observations, and results.
- Log book is maintained for usage of instruments.
- Staff documents the procedure of the experiments in the syllabus in the form of the lab Manuals.

- Practicals are planned by the incharges and recorded in the preparation book for the entire semester in advance.
- Requirements for the experiments are entered in the preparation book a week in advance to ensure smooth conduct of practicals.

7. Training and Supervision:

- Staff members oversee all activities in the laboratory to ensure compliance with policies and regulations.
- Staff members perform the experiments to check its working before giving it to the students so that there is no wastage of chemicals and other resources.
- Lab staff are sent for training on instruments and lab safety whenever such workshops are held.

8. Environmental Considerations:

- Measures are taken to minimize environmental impact, including use of environmentally friendly alternatives wherever possible.
- Qualitative experiments are carried out at micro scale and unused, uncontaminated chemicals are recycled.

By implementing and enforcing these policies our chemistry laboratory maintains a safe, efficient, and productive working environment for all personnel. In addition to these policies, experiment specific instructions are given by the staff while performing each and every experiment.

Department of Life Science

1. Laboratory Safety Procedures

The laboratory hazards include: animal, biological, chemical and physical. If there is an accident or emergency involving any of these:

- Seek immediate assistance.
- Report to your instructor about accident, injury, or uncontrolled spillage of any chemical.

2. Good Laboratory Practices

- The student should be aware of required laboratory safety prior to the start of each practical experiment.
- Read all procedures carefully prior to the start of an experiment.
- The student should perform only those experiments authorized by the instructor.
- The student should follow all written and verbal instructions.
- UG students to work under direct supervision at all stages of the experiments.

- The student should be alert and proceed with caution at all times in the laboratory.
- The student should conduct themselves in a responsible manner at all times.
- The student should dress appropriately in the laboratory. Tie back long hair, jewelry, or anything that may catch in equipment.
- No food, beverages or chewing gum or applying cosmetics (including lip balm), or handling contact lenses is allowed in the laboratory.
- The student should observe good housekeeping, seating arrangements and keep aisles and the doors clear.
- Report damaged electrical equipment to the instructors or to the laboratory staff. Do not use damaged electrical equipment.
- The student should not leave active experiments unattended or leave anything that is being heated or is visibly reacting unattended.
- They should practice good personal hygiene, wash hands after removing gloves, before leaving the laboratory, and after handling a potentially hazardous material.
- While working in the laboratory, wear personal protective equipment - eye protection, gloves, laboratory coat - as directed by the instructor.
- Properly segregate and dispose of all laboratory waste

Department of Microbiology-

Each student working in a microbiological laboratory bears responsibility for her own safety as well as ensuring the safety of other students in Laboratory.

Mentioned below are some of the safety guidelines-

1. **Treat all microorganisms as potential pathogens-** While the majority of microorganisms are not pathogenic to humans and have never been shown to cause illness, under unusual circumstances a few microorganisms that are not normally pathogenic can act as pathogens. Treat all microorganisms—especially unknown cultures—as if they were pathogenic. A student who has a compromised immune system or has had a recent extended illness should talk with the instructor before working in the microbiology laboratory.
2. **Wear cotton clothing-** Practical work in a microbiological laboratory involves working close to burners. Therefore, wear cotton clothing (including scarfs) and avoid long sleeves and loose-fit clothes. **Always wear a lab coat while working in the laboratory.**
3. **Sterilize equipment and materials-** All materials, media, tubes, plates, loops, needles, pipettes, and other items used for culturing microorganisms should be sterilized by autoclaving. Understand the operation and safe use of all equipment and materials needed for the laboratory.

4. **Disinfect work areas before and after use-** Use a disinfectant, such as Dettol or 70% ethanol solution, to wipe down benches and work areas both before and after working with cultures. Also be aware of the possible dangers of the disinfectant, as 70% ethanol can catch fire around open flame or high heat sources. Disinfectants can be dangerous if splashed in the eyes. Rinse eyes thoroughly if this happens.
5. **Wash your hands-** Use a disinfectant soap to wash your hands before and after working with microorganisms. Non Disinfectant soap will remove surface bacteria and can be used if disinfectant soap is not available. Gloves may be worn as extra protection.
6. **Avoid mouth pipetting.** Use pipette bulbs or pipetting devices for the aspiration and dispensing of liquid cultures.
7. **Do not eat or drink in the lab, nor store food in areas where microorganisms are stored-** Never eat or drink in the laboratory while working with microorganisms. Keep your fingers out of your mouth, and wash your hands before and after the laboratory activity. Cover any cuts on your hands with a bandage. Gloves may be worn as extra protection.
8. **Label everything clearly-** All cultures, chemicals, disinfectant, and media should be clearly and securely labeled with their names and dates. If they are hazardous, label them with proper warning and hazardous information.
9. **Autoclave or disinfect all waste material-** All items to be discarded after a class, such as culture tubes, culture plates, swabs, toothpicks, wipes, and gloves. All cultures and natural samples likely to contain should be autoclaved at 121° C at 20 p.s.i, for 15-20 minutes. If no autoclave is available and you are not working with pathogens, the materials can be covered with a 10% bleach solution and allowed to soak for at least 1 to 2 hours.
10. **Clean up spills with care-** Cover any spills or broken culture tubes with a 70% ethanol or 10% bleach solution; then cover with paper towels. After allowing the spill to sit with the disinfectant for a short time, carefully clean up and place the materials in a biohazard autoclave bag to be autoclaved. Wash the area again with disinfectant.
11. **Never-** pick up glass fragments with your fingers or stick your fingers into the culture itself; instead, use a brush and dustpan.
12. Good organizational skills and a disciplined approach, ensures that all activities are performed safely and efficiently.

Department of Physics

In a physics laboratory, safety procedures are paramount to ensure the well-being of everyone involved. Before conducting any experiment, students and staff must familiarize

themselves with the layout of emergency exits, fire extinguishers, and first aid kits. All equipment must be inspected regularly for any signs of damage or malfunction. Furthermore, experiments involving hazardous materials or high voltages should only be performed under the supervision of trained professionals. Department maintains a practical requirement register in which the requirements of the practicals scheduled are entered a week in advance.

Department of Zoology

1. The students are oriented about the basic laboratory practices and safety measures to be followed while handling equipment, specimen jars and dissection box instruments such as scalpel, scissors, pointer needles, glass slides and cover glasses, at the beginning of the academic year, especially the first year students.
2. Students are asked to maintain a rough journal to record the raw data of the experiments performed, draw diagrams of the specimens observed, etc. which is signed at the end of each practical session.
3. The approved work of the journal is then transferred in the fair journal which is signed weekly.
4. The department has a well-maintained museum of biology specimens and models. The upkeep of the preserved specimens is meticulously done. The specimen jars are cataloged and labeled appropriately.
5. Students are made aware of the meaning of the hazard symbols of the chemicals that they use. Proper precautions to be taken while using these are also mentioned through infographics pasted on the walls of the laboratory.
6. The department maintains a practical requirement register in which the requirements of the practicals scheduled are entered a week in advance.
7. Students, teaching staff as well as the lab staff make sure that the hygiene and cleanliness is maintained ensuring a safe environment.
8. Ethical guidelines for usage of animals are followed as per the directions given in the UGC Circular F14-4/2006 (CPP-II) and the practicals are taught by using photographs/audio-visual aids/ simulations / models, etc. wherever applicable.

Department of Information Technology

Access and Scheduling:

Access to BSc.I.T computer labs is granted to registered undergraduate students enrolled in BSc.I.T courses.

Lab Rules and Etiquette:

All users must adhere to lab rules posted in the facility, including guidelines for behavior, cleanliness, and respecting others' space. Food and drink are prohibited in the lab area to maintain cleanliness and prevent damage to equipment.

Security Measures:

Security cameras are installed to monitor lab activities and ensure the safety of equipment.

Technical Support:

On-site technical support staff are available during designated hours to assist students with troubleshooting software and hardware issues.

Software and Hardware Maintenance:

Lab computers are regularly updated with the latest software patches and security updates. Hardware maintenance is conducted on a scheduled basis to ensure optimal performance and longevity of equipment.

Training and Resources:

Training sessions and resources are provided to students to familiarize them with lab equipment and software tools. Tutorials, workshops, and online resources will be available to support students in developing their technical skills.

Collaboration Opportunities:

The lab environment is conducive to collaboration and teamwork, with designated areas for group projects and study sessions. Students are encouraged to engage in collaborative activities that leverage the resources available in the lab.

Integration with Curriculum:

Lab activities are integrated into the curriculum of BScIT courses to provide hands-on learning experiences that reinforce theoretical concepts. Projects and assignments are designed to utilize lab resources effectively and develop practical skills relevant to the field.

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