

SAFETY PROCEDURES AND POLICIES FOR MICROBIOLOGY COURSES

Standard Microbiological Practices:

1. Access to the laboratory is restricted and students may not work in the laboratory with cultures and specimens without the instructor or another faculty or staff member present.
2. The doors to the laboratory must remain closed while work with microbiologicals is in progress.
3. Access to the laboratory by a student who is not scheduled for class at that particular time is limited or restricted at the discretion of the laboratory instructor when experiments or work with cultures and specimens are in progress.
4. Hands must be washed after handling potentially infectious materials, after removing gloves, and before leaving the laboratory. The proper procedure for hand washing is as follows:
 - Use running water and soap from a dispenser.
 - Wet hands first with warm water.
 - Apply soap and lather hands together for 10-15 seconds.
 - Avoid splashing water on clothing or floors or touching faucets or sinks.
 - Rinse hands well under running water.
 - Pat hands dry with paper towels.
 - Turn off faucets with dry paper towels if knee or foot controls are not available.
5. The following rules must be followed by **ALL** individuals who are working in the microbiology laboratory:
 - Treat all microorganisms as potential pathogens.
 - **Eating (including gum chewing), drinking, applying cosmetics (including lip balm)**, other hand-to-mouth activities, and the handling of contact lenses are prohibited in areas where potentially infectious materials are present.
 - Individuals wearing contact lenses in the laboratory should wear chemical splash goggles to protect their eyes from accidental contamination.
 - Food and/or drink storage is prohibited in areas such as refrigerators, freezers, shelves, cabinets, countertops or bench tops, where potentially infectious materials are present.
 - All book bags, coats, etc. must be stored in the designated areas.
 - **DO NOT** bring any materials to the lab benches that are not absolutely necessary to perform the laboratory assignment for that day.
 - No cell phones are permitted on lab benches.

6. Mouth pipetting is prohibited; mechanical pipetting devices are used.
7. All procedures are performed carefully to minimize the creation of splashes or aerosols.
 - Use Bacti-incinerators for sterilization of microbiological loops and needles.
 - Do not vortex cultures for mixing purposes.
 - Centrifugation must be performed using centrifuge safety caps.
 - Pipettes should be drained with the tip against the inner wall of the receiving vessel.
 - Never forcibly expel any hazardous material from a pipette.
8. Work surfaces must be decontaminated before and after each laboratory class with the use of an appropriate disinfectant such as CaviWipes 1, CaviCide Spray, or a fresh 10% bleach solution. Work surfaces must also be properly decontaminated after a splash or spill of potentially infectious material.
9. All cultures, stocks, and other regulated liquid or solid wastes are decontaminated prior to disposal by an approved decontamination method such as autoclaving.
 - All contaminated Petri plates are placed in designated biohazard bags (clear bags in red marked biohazard step cans). Do not fill more than 2/3 full.
 - All contaminated tube media are placed in designated white test tube racks marked "TO BE AUTOCLAVED" for decontamination. These racks are located next to the sink.
 - Swabs, wooden sticks, disposable pipets, and serological pipettes are placed in designated sharps containers (white cardboard sleeve in clear autoclave bag) to be autoclaved.
 - Contaminated slides, 12x75 tubes, and capillary tubes are to be placed in designated sharps containers (white cardboard sleeve in clear autoclave bag) to be autoclaved.
 - All scalpels, razor blades, needles, or syringes must be placed in puncture resistant, leak proof, red sharps containers equipped with a clear lid. Do not fill more than 2/3 full.
 - Filled biohazard bags and sharps containers will be removed by the laboratory instructor or a member of Laboratory Services and placed in the designated area in N146 at the end of the lab period for proper decontamination and disposal.
10. Materials to be decontaminated outside of the immediate laboratory are to be placed in a durable, leak-proof container and closed for transport from the laboratory. Materials to be decontaminated off-site from the laboratory are packaged in accordance with applicable local, state, and federal regulations before removal from the facility.

11. Safe handling of sharps such as needles, scalpels, pipettes, and broken glassware is of the utmost importance in a laboratory setting. To reduce the risk of sharps injuries, the following precautions must be followed:
 - Needles are not to be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand prior to disposal.
 - Used disposable needles and syringes must be placed in the clearly marked puncture resistant, leak proof, red sharps containers equipped with a clear lid. These sharps containers are available in all of the biology laboratories and should be carefully placed in near proximity to where the needles/syringes are being used.
 - Non-disposable sharps must be placed in a hard walled container for transport to N146 for decontamination by autoclaving.
 - Broken glassware is never to be handled directly. Instead, it must be removed using a brush and dustpan, tongs, or forceps. Plastic ware should be substituted for glassware whenever possible.
12. Chemical solutions (including gram stains) must be collected for disposal. Waste collection containers will be available in the lab. The laboratory instructor will designate which container wastes should be added to. Do NOT pour them back into original stock containers or into the sink. Students and instructors must monitor the level of the disposed liquids in the waste container to ensure they do not overflow. Additional waste containers are available under the sink.
13. Disposable laboratory coats must be worn to prevent contamination or soiling of street clothes. The coat must be buttoned at all times. The coat cannot be used for other laboratory courses, be taken home, or stored in office spaces. The coat will be autoclaved and discarded at the end of the semester. **Students who choose to wear a cloth coat are responsible for the cost of professional cleaning. Cloth coats cannot be removed from the laboratory until they have been professionally cleaned.**
14. **Closed-toe shoes that cover the entire foot must be worn.** Any footwear that does not cover the top of the foot (i.e. ballet type slip-on shoes, flip flops, sandals, and high heels) is not acceptable in lab. Students must have proper shoes on their feet **before** entering the laboratory. Any student not wearing proper footwear will be asked to leave the laboratory.
15. Long hair (below chin) must be pulled back and secured.
16. Gloves must be worn when working with bacteria to protect hands from exposure. Gloves with visible contamination should be removed immediately and disposed in marked biohazard receptacles. Hands should then be washed and gloves replaced. Disposable gloves are never to be washed or reused. Gloves are not permitted to be worn outside of the laboratory.

17. Chemical splash goggles must be worn during any procedures in which a splash hazard of microorganisms or other hazardous materials is anticipated. Chemical splash goggles are not required to be worn while working with microscopes. More specifically, chemical splash goggles must be worn in the following scenarios:
 - Handling chemicals hazardous to the eyes.
 - Using chemicals which you do not know if they are hazardous to the eyes.
 - Working with gases.
 - Working with liquids which are hotter than 60°C or 140°F.
 - Working with solid materials (i.e. glassware) or equipment under stress, pressure, or force that might cause fragmentation or flying particles.
 - When dust or fumes are present.
 - Working with preserved specimens during dissection activities

18. Every person working in the laboratory must be aware of the proper emergency procedures as outlined by the instructor and the location and proper use of the following emergency equipment:
 - Emergency Eyewash
 - First Aid Kit
 - Fire Blanket
 - Fire Extinguisher
 - Telephone and Emergency Contact Numbers

19. Biological safety cabinets (Class I or II) or other personal protective equipment or physical containment devices are used:
 - When performing procedures with a high potential for creating aerosols. This may include centrifuging, grinding, blending, vigorous shaking or mixing, sonic disruption, and opening containers of infectious materials whose internal pressure may be different from ambient pressures.
 - High concentration or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory if sealed heads or centrifuge safety caps are used and if they are opening only in a biological safety cabinet.

20. Only SU faculty/staff is permitted to contain, decontaminate, and clean up spills of infectious materials. Proper decontamination of the spill area is required prior to the continuation of work.

21. Each individual participating in microbiology laboratory courses must review the following: Laboratory Safety Practices and Policies, Safety Procedures and Policies for Microbiology Courses, and the Notification of Possible Health Risk. Each individual must also complete the required quiz and electronically sign and submit the Laboratory Safety Agreement and Notification of Possible Health Risk forms.