Laboratory Safety Statement, Biology 205 Microbiology (S6-214/S6-215)

The lab exercises in this course involve the use of living organisms. Although not all of the microorganisms used in lab are considered to be highly virulent, all microorganisms should be treated as potential pathogens (organisms capable of causing disease). The following rules must be observed at all times to prevent accidental injury to and infection of yourself and others and to minimize contamination of the lab environment:

1. Work areas must be cleaned with disinfectant solution at the beginning AND end of each lab. Hands must be washed with soap and dried with paper towels upon entering and exiting the lab.
2. Lab coats and closed toed shoes must be worn at all times while working in the lab.
3. Long hair must be tied back to prevent exposure to flame and contamination of cultures.
4. **Nothing may be placed in your mouth or eyes**- this includes cosmetics, gum, cough drops, or food items, as well as your fingers or other objects. Keep your hands away from your mouth and eyes. **Eating and drinking are strictly prohibited in the lab at all times.**
5. To avoid contamination, extra books, backpacks, purses, or other items should be clear of the lab bench.
6. **Electronic devices** may only be used for laboratory purposes (*e.g.*, taking notes or pictures). This includes cell phones.
7. **Safety goggles** must be worn when handling liquids and during inoculations using BioSafety Level 2 organisms. Refer to the *Microbiology Lab Organism List* for a list of all BSL-2 organisms.
8. Gloves should be worn when handling hazardous chemicals and are recommended when staining microbes.
9. Pipetting by mouth is strictly prohibited. Mechanical pipetting devices must be used.
10. Cultures must be carried and stored in **test tube racks** at all time.
11. **Spills** and **injuries** must be reported to the instructor immediately. Spills must be immediately covered with paper towels and saturated with disinfectant. After 15 minutes, spills can be cleaned and disposed of as directed by your instructor.
12. Contaminated instruments must be handled properly and not allowed to touch any uncontaminated surface. Loops and needles should be sterilized by incineration, and pipettes should be disposed of in designated receptacles in the "MORGUE."
13. No organisms will be stored in personal/community boxes/drawers, or removed from the lab.
14. At the end of each lab session, all cultures and materials must be placed in their designated disposal areas.

OSHA INFORMATION

Material Safety Data Sheets (MSDS) are located in a folder on the shelf above the printer. The **First Aid Kit** is located next to the printer in the rear of the lab. The **Eyewash Station** is located to the right of the white board. The **Shower** is located to the right of the whiteboard. The **Fire Extinguisher** is located on the wall to the left of the white board. The **Fire Blanket** is located on top of the fire extinguisher.

STUDENT AGREEMENT ON LABORATORY SAFETY

I have read the Laboratory Safety Statement of the Department of Biological Sciences, San Diego Miramar College, and I understand its content. I agree to abide by all laboratory rules set forth by the instructor. I understand that my safety is entirely my own responsibility and that I may be putting myself and others in danger if I do not abide by all the rules set forth by the instructor. I further understand that unsafe actions may results in point deductions and expulsion from the lab.

COURSE: BIO 205 (MICROBIOLOGY) • SEMESTER _____ • DATE: _____

NAME OF STUDENT (PRINT): _____

SIGNATURE OF STUDENT: _____

Laboratory Introduction

Because the labs and protocols in this course involve living organisms that can be potential pathogens, you must adhere to strict safety guidelines and rules in order to ensure safety for yourself and your colleagues, as well as your family and friends at home. The safety rules and guidelines listed below will ensure a good working environment for everyone. Additionally, you will find a detailed explanation of the proper placement and care of laboratory equipment, waste, and organisms.

Culture Identification & Labeling

You must properly label each and every culture you work with in the lab. **Cultures must never be stored in your Personal Box or Community Box/Drawer. Never remove any culture, plate, or test tube from the lab whether or not it has been inoculated with an organism.**

DO NOT TIP OR TILT TUBES AT ALL!

Test tubes

- Fill out an Inoculation Label for each inoculation. Inoculation Labels can be found at the beginning of this lab manual.
- Secure the label to the test tube using a rubber band. Small rubber hair bands can be purchased for this purpose. DO NOT tip or tilt tubes- be especially mindful of this when applying labels to test tubes with rubber bands.
- Do not write directly on test tubes or glassware with markers or pens.

Petri plates/dishes

- Using a marker, and the Inoculation Label information as a guide, label the outer edge of the bottom side of the Petri plate with your name, date, media type, and identifying remark (*i.e.*, lab/organism). **Note: the bottom of the plate is the agar-containing side.**

Waste Handling

All materials that have come in contact with any microbe are considered hazardous waste and must be disposed of according to the following guidelines. Take the time to identify the following items in the laboratory.

Hazardous Waste Disposal ("The Morgue")

Test Tubes

- Always place used test tubes in the appropriate test tube rack. There are 2 types of tubes used in this lab: large (16mm diameter), and small (13mm diameter). Labeled racks are provided for each. Remove all labels from the test tubes before placing them in the rack. Rubber bands should be reused.

Glass

- Glass items, such as slides and coverslips, and wooden toothpicks are discarded in the plastic sharps container.

Additional Sharps

- Larger non-glass (but still sharp) items, such as Pipettes, and pipet tips, and cotton swabs are discarded in the white plastic tub.

Non-Sharps Material

- All other **contaminated** material including plates, gloves, and paper towels are discarded in the BioBag trashcan. Note: only contaminated materials need to be placed here. **Gloves worn during routine lab activities or paper towels used to clean your person or your table top are not considered contaminated.**

Stains

- All stains must be collected for disposal and NOT poured down the sink. Staining trays should be emptied into the large white carboy on the back bench. Although stain must be discarded in the Stain Carboy, water used to rinse these trays can be poured directly down the drain. Please make sure trays are clean and dry before storing them.

Non-Hazardous Waste

- Material that has not come into contact with any organism can be disposed of in the regular trash or recycle bin. This includes gloves and paper towels unless you have been directed otherwise. If you need to dispose of broken glass (contaminated or otherwise), please request that the lab personnel or your instructor do it for you.

Chemical Stains/Reagents

Chemical stains and reagents are kept in the lab and can be refilled and used by students when necessary.

Staining Kits

- When stains in the staining kits are running low, it is the student's responsibility to refill them.
- Refill stains in the community sinks, not the counter tops. Wash any spilled stain down the drain with plenty of running water.

- Please inform the laboratory staff if any of the refill bottles are empty, then place the empty bottle in the morgue area. **Do not discard the empty bottles**.

Chemical Reagents

- In the reagents cabinet, each row and individual canister is labeled. It is always a good idea to double check that the reagent in the canister is the same as that listed on the canister.
- Promptly return reagents to the correct area and shelf of the cabinet. If one of the reagents is empty, please inform the laboratory staff and place the empty reagent container in the morgue area. **Do not discard the empty bottles**.

Common Areas

Please adhere to the following guidelines with respect to common areas.

Instructor Bench

- Unless specifically directed by your instructor, do not place any of your materials on the Instructor Bench.

Back Bench

- Necessary media, reagents, and other lab equipment will be set out on the Back Bench at the beginning of each lab period. Communal supplies need to be returned to this area as soon as they are no longer being used.
- Typically, supplies are shared among members of the 4-person teams or the 8-member tables. Please do not take any supplies that are not designated for your use.
- Collect your supplies, return to your seat and continue your work there. Do not perform any inoculations or other lab procedures on the Back Bench unless otherwise instructed. ALWAYS TRANSPORT TEST TUBES IN A TEST TUBE RACK, failure to do so will result in a loss of *Lab Technique* & *Cleanliness* points.

Student Storage

- Personal Boxes are for the storage of personal lab equipment, including: microscope slides, inoculating loop, inoculating needle, bibulous paper, lens paper, a permanent marker, china marker/grease pencil, rubber bands, Inoculation Labels, a lab coat, and hairbands (if necessary). Students may also store gloves, tape, scissors, colored pencils, or similar items. Any personal property not used in class is not permitted. Never use Student Storage for valuables.

Community Boxes/Drawers & Microscopes

- Community Boxes/Drawers and microscopes are stored in their designated place in the cupboards of the Student Benches/Cabinets.

Incubator Room

- Incubators: Each section will have a designated 25°C and 37°C incubator, as well as a shelf in the 4°C incubator/Deli Box. Additional 30°C, 42°C, and 55°C incubators may be used throughout the semester, but are shared among all sections. IF MEDIA ARE FOUND OUTSIDE THEIR DESIGNATED AREA, THEY WILL BE DISCARDED.
- Incubator Test Tube Racks: There is a designated test tube rack in the 4°C, 25°C, and 37°C incubators for each student bench (labeled Table 1, Table 2, and Table 3). Be sure that you are placing your test tubes into the correct rack inside the correct incubator. Unless specifically directed by the laboratory staff, do not place any other test tube rack in these incubators.
- Culture Media Removal: When your inoculations have incubated and the results have been recorded, promptly remove them to the morgue. If you are directed to store them, move them to the appropriate shelf in the 4°C incubator/deli box.
- NEVER move another student's inoculations or change the incubator temperature.