

Biology 6 Laboratory Syllabus and Guidelines

Laboratory Equipment:

1. **Lab Manual:** Leboffe, M.J. & B.E. Pierce, 2010. *Microbiology, Laboratory Theory and Application: Customized for Cabrillo College*, 3rd ed., Morton Publishing Company.
2. The lab manual will be supplemented with Lab Notes. These notes include any changes to protocols, a list of the organisms we will be using, and any special notes or warnings you need to be aware of before conducting the exercise. These notes can be downloaded from your instructor's website.
3. **Equipment:** In addition to the lab manual you will need:
 - a. Padlock. The padlock is for the storage drawer (you may share with your lab partner)
 - b. Disposable latex or nitrile gloves. Gloves can be purchased at most drug stores and the Cabrillo Bookstore.
 - c. Lab coat (an old button down shirt is sufficient)
 - d. Safety glasses or goggles. Safety glasses and goggles can be purchased at any hardware store (Orchard Hardware & Supply on 41st Ave. has a large selection) or at the Cabrillo bookstore.
 - e. Sharpie pen
 - f. Box of microscope slides (available at the bookstore). You may share one with your lab partner.

Laboratory Policies:

1. **Attendance:** The first week of lab meetings are **mandatory** because they cover basic skills that are the foundation for the rest of the semester. Inability to attend any of these labs will result in being dropped from the course. Students are expected to be on time for all class meetings. If you are late and miss the introductory lecture, you will not be allowed to participate in that day's exercise. Because of the nature of the laboratory exercises, the labs **cannot** be made up at another time. The microbiology lab will have open lab hours when students are able to come in and study their cultures outside of regular class time. Open lab hours will be announced.
2. **Be prepared for class.** The Background Readings are **required**. Lab exam questions will be based on background reading from both the lab manual and textbook readings, as well as the exercises themselves. Before coming to class, always read through the lab introduction provided in the lab manual, the experiments themselves, and the Lab Notes (downloaded from the Bio 6 website). It is strongly recommended that you write up an outline of the day's experiments. This will help you avoid wasting valuable lab time as you try to figure out what to do. It is also important for safety reasons: it will forewarn you of any special lab hazards and will help eliminate rushing which is the primary reason for most avoidable lab accidents. Write out your own bulleted list of tasks to be completed before each class meeting. Check off each item on this list as you complete each part of the exercise in lab. Occasionally there may be last minute changes from the protocol described in the Lab Notes and lab manual. You will be informed of these changes at the beginning of class during the lab introduction.
3. Anyone caught tampering with or pilfering the cultures of other students will be dropped from the course. This includes any cultures in either the incubators or the refrigerators.
4. **Grading.** Your laboratory grade contributes 35% towards your final course grade.
 - a. Lab Exams: The lab exams will primarily consist of short answer, some fill-in, and practical questions with actual specimens. It is important that you keep good notes

on your observations and answer the review questions at the end of each exercise.
The Lab Final Exam is comprehensive.

- b. Culture Identification Report: Each student will receive a pure culture of a bacterium to identify. Using the techniques you have learned during the semester you will identify the organism.

LAB GRADE BREAKDOWN	
	Points
Lab Exam #1	50
Lab Exam #2	50
Lab Final Exam	50
Culture ID Report	50
Total	200

5. How to Study for Lab Exams.

- a. Review biological concepts, especially all biochemical reactions
- b. Review lab protocols – understand the purpose of each step in a procedure; understand how and when a particular protocol should be used
- c. Review results – know what the cultures and media looked like both before and after inoculation
- d. Review questions from the study guides

6. **Accommodations.** As required by the Americans with Disabilities Act (ADA), accommodations are provided to ensure equal opportunity for students with verified disabilities, including "invisible" disabilities such as chronic diseases and learning disabilities. If you have a disability that requires accommodations for this class, please contact the Learning Skills Program at 479-6220 (for students with learning disabilities and attention deficit disorder) or Disabled Student Services at 479-6379, to make arrangements as soon as possible.

Laboratory Safety Rules:

The microorganisms used in this course are of little or no risk to healthy people working with them, provided that standard microbiological practices are followed. In order to maintain safe conditions in the laboratory, the following rules **must** be observed.

1. **No drinking or eating at any time. Period.**
2. **Clothing.** A lab coat, gloves, goggles, and closed toed shoes **MUST** be worn whenever you are working with cultures. You will not be allowed to participate in lab activities if you are not properly attired. If you have long hair, tie it back or put it up. Hair hanging loose is a contamination hazard and can catch fire in the Bunsen burner flame.
3. **Lab coat:** Your lab coat should be long enough to cover and protect your clothes and arms. An old button down shirt is sufficient. Do not use anything that must be pulled off over your head, like a T-shirt or sweatshirt. Always button your lab coat when working with cultures so that your clothes are not exposed. Your lab coat should be taken home and washed **EACH WEEK.**
4. **Hand Washing.** Gloves must be removed and hands must be washed with soap **EACH TIME** you leave the lab for any reason (especially before using the restroom).
5. **Work Area.** Decontaminate the countertop at the beginning and end of each laboratory period with the disinfectant provided. Dispose of the paper towels used for cleaning the

countertop in the garbage can. When setting up your Bunsen burner, tape down the rubber hose to the table top to prevent the hose from tangling with other equipment or tipping the burner over.

6. **Culture Handling.** You must assume that all the cultures you work with are potentially pathogenic and handle them appropriately. Cultures are always carried in a rack. Culture tubes must be kept in a rack at the bench. Never prop up cultures along the edge of the countertop or the black stain box. Culture tubes and petri dishes are to be marked with your name or initials, experiment number and date. Petri dishes are kept in mesh baskets and culture tubes in racks. Place your cultures only on those shelves marked for your lab section.
7. **Culture Disposal.** Unless you are told otherwise, used stock cultures are to be disposed of in the small plastic autoclave bags from your kits and placed in the large gray "Biohazard" container at the END of each lab session. Check to be sure the Biohazard can is lined with a large autoclave bag. All biohazard waste must be double-bagged. If another manner of stock culture disposal is to be used, the lab instructor will describe the appropriate method. When you have completed observations on your experimental cultures, the cultures should be disposed of in the same manner as the stock cultures. Do not leave them in the 35° C incubators. Grown cultures may be TEMPORARILY stored in the refrigerator if not all lab partners have observed the results, but be sure to throw them out by the next class meeting. They begin to smell after a short time and they take up needed space. Cultures, pipettes, slides, media, and any other lab materials are **NEVER** to be discarded in garbage cans. Cultures are **NOT** to be removed from the laboratory under any circumstances. Failure to follow this rule will result in immediate dismissal from the class.
8. **Accidents and Spills.** Notify the instructor immediately if there is a culture spill, glass broken, a fire, or if any injuries occur. Note the location of the fire extinguisher and the emergency shower. Use the Bunsen burners carefully and avoid reaching over the flame. Spilled cultures should be flooded with disinfectant. Leave the disinfectant on the spill for at least 15 minutes and then wipe up with paper towel. Dispose of the towels in your autoclave bag, **NOT** in the garbage can. Immediately change your gloves before touching anything else.
9. **Visitors.** Only students enrolled in the class should be in the laboratory (No children, friends, spouses, pets, etc. will be allowed in the lab).
10. **Personal Care.** Be sure to notify the instructor if you are or become pregnant, have allergies, are taking immunosuppressive drugs, have an immune system disorder, are diabetic, or have any other medical condition which might necessitate special precautions in the lab.
11. **Expectations.** The knowledge and application of good aseptic technique is essential and will be expected. Always remember that following these rules will lessen the hazards of working with microorganisms not only to yourself, but to those around you. Keep in mind that the safety and health of your fellow students rests in large part on the expectation that you will follow these rules and apply them in the lab.

FAILURE TO OBSERVE THESE SAFETY RULES WILL RESULT IN IMMEDIATE DISMISSAL FROM THE CLASS.