

Microbiology 22 Lab Schedule, Mt. San Antonio College, Winter 2020

Wk	Date	<u>Lab Activities</u>
1	Jan. 6	Orientation with Introductions, Safety, & Pathogen Groups
	Jan. 7	Exercise 1: The Microscope and Bacteria Objectives: Learn the parts of the compound microscope and their functions. Learn how to safely transport, clean, and store the microscope. Learn to observe various specimens on slides using the low power, high power, and oil immersion objectives. Learn to identify the three basic morphologies of bacteria, and some of their characteristics.
	Jan. 8	Finish Exercise 1.
	Jan. 9	Exercise 2: Culturing Your Environment – LQ#1 Objectives: Learn terms related to culturing microorganisms, demonstrate aseptic techniques and lab procedures, describe colony characteristics, compare bacterial growth on your samples, and describe why agar is used in culture media.
2	Jan. 13	Get results from Exercise 2. Exercise 3: Media and Aseptic Techniques Objectives: Carry out the technique for aseptic removal and transfer of microorganisms for subculturing. Correctly sterilize inoculating instruments using the Bacti-Cinerator. Evaluate bacterial growth on slant and broth subcultures.
	Jan. 14	Get results from Exercise 3. LQ#2 W PG #1 Exercise 4: Simple Stains Objectives: Prepare bacterial smears for microscopic visualization. Perform simple staining from liquid and solid media. Compare shapes and arrangements of bacterial cells.
	Jan. 15	Exercise 5: Gram Stain LQ#3 W PG #2 Objectives: Become proficient in making and viewing Gram stain, acid-fast stain, and spore stain slides.
	Jan. 16	Exercise 5 continued: Acid-fast and Spore Stains LQ#4 W PG#3

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3	Jan. 20	Holiday
	Jan. 21	Unknown Staining
	Jan. 22	Finish Unknown Staining. Identify organism for “Unknown challenge points.” Exercise 6: Fungi Objectives: Learn to distinguish among types of hyphae. Learn yeast morphology (budding, pseudohyphae). Learn to distinguish among several different fungi based on their physical characteristics. Learn vocabulary associated with fungi parts. Learn the importance of HardyCHROM differential culture media. See the parts of lichen.
	Jan. 23	Exercise 7: Protists Objectives: Compile information about several protozoa, and learn to distinguish among them based on unique physical characteristics. Exercise 8: Parasitic Worms and Arthropod Vectors Objectives: Compile information about several worms and arthropods, and learn to distinguish among them based on unique physical characteristics.
4	Jan. 27	Exercise 9: Pure Culture Techniques Objectives: Isolate bacteria by using streak plate and pour plate techniques. Prepare and maintain a pure culture. Exercise 10: Isolation of Pathogens Objectives: Learn how to obtain clinical specimens, become familiar with culture media used to isolate pathogens, and make representative cultures.
	Jan. 28	Get results from Exercise 9 and 10. Subculture for “Pure Culture Challenge” points. Exercise 11: More Tests of an Unknown Bacterium Objectives: Demonstrate biochemical characteristics, motility, and oxygen requirements of microorganisms. Exercise 12: Rapid Bacterial Identification Objectives: Understand the meaning of “enteric,” compare the media and conventional tube methods you've used, and learn to use the API 20E system.
	Jan. 29	Get results from Exercise 11 and 12. Exercise 13: Summary of UTI Results Objectives: Use results of exercises 10-13 to identify your mystery microbe. Discussion time, as needed.

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	Jan. 30	Exercise 14: Susceptibility to Antibiotics, Dyes, and Metals Objectives: Learn to perform antimicrobial susceptibility tests using paper discs. Test effects of dyes and metals.
5	Feb. 3	Get results from Exercise 14. Exercise 15: Heat, Cold, Drying, and Radiant Energy Objectives: Demonstrate the effectiveness of these control methods against common microorganisms.
	Feb. 4	Get results from Exercise 15. Exercise 16: Antibacterial Products (Each student brings a favorite antiseptic or disinfectant to test.) Objectives: Compare effectiveness of disinfectants, antiseptics, and cleaning products. Demonstrate the importance of time, concentration, and species.
	Feb. 5	Get results from Exercise 16.
	Feb. 6	Exercise 17: HIV Epidemic and Detection with ELISA Objectives: Take part in synthetic epidemic, use ELISA to detect HIV antibodies, and use epidemiology to learn source of epidemic.
6	Feb. 10	Exercise 18: Bacterial Transformation Objectives: Perform genetic transformation of <i>E. coli</i> with a jellyfish gene that codes for a fluorescent protein.
	Feb. 11	Get results from Exercise 18. Exercise 19: Testing Water and Milk (each student brings) Objectives: Perform bacteriological testing procedures for water and milk, including testing for coliforms, membrane filtration, and plate counts.
	Feb. 12	Pathogen test
	Feb. 13	Get results from Exercise 19.