

Mt. San Antonio College
Microbiology 22 Lab Schedule for Fall 2016
Mon/Weds. Split Lab Sections ONLY

Wk	Mon. Date	Mon. Lab Activities: <i>1 hour 25 minutes (No break)</i>	Weds. Date	Weds. Lab Activities: <i>1 hour 25 minutes (No break)</i>
1	Aug. 29	Orientation with Introductions & Safety Rules/Regulations	Aug. 31	Orientation with Pathogen Groups
2	Sept. 5	HOLIDAY: LABOR DAY!	Sept. 7	<u>Exercise #1:</u> The Microscope 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.
3	Sept. 12	<u>Exercise #1 continued:</u> The Microscope and Introduction to Bacteria!	Sept. 14	<u>Quiz 1 (lab safety/regulations & Lab Exercise 1)</u> <u>Exercise #2:</u> Culturing the Environment and Your Hands! 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.

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4	Sept. 19	<p><u>Exercise #3:</u> Media, Aseptic Techniques and Handling Cultures</p> <p>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.</p> <p><u>Write-Up this Lab; due in 3 weeks at the beginning of lab class!</u></p> <p>(PG1)*</p>	Sept. 21	<p><u>Exercise #4:</u></p> <p>Simple Staining</p> <p>Objectives: Prepare bacterial smears for microscopic visualization. Perform simple staining from liquid and solid media. Compare shapes and arrangements of bacterial cells.</p>
5	Sept. 26	<p><u>Quiz 2 (Lab Exercises 2 & 3 + PG1)</u></p> <p>Simple Staining continued to completion.</p>	Sept. 28	<p><u>Exercise #5: Gram Stain</u></p> <p>Objectives: Become proficient in making and viewing Gram stain, acid-fast stain, and spore stain slides.</p>
6	Oct. 3	<p><u>Exercise #5 continued:</u></p> <p>Acid-fast and Spore Stain</p> <p>(PG 2)*</p>	Oct. 5	<p>Unknown staining</p>

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7	Oct. 10	<p><u>Quiz 3 (Lab Exercises 4 & 5 + PG2),</u></p> <p>Unknown staining continues to completion</p>	Oct. 12	<p>Fungi Lab (<i>Exercise #6</i>)</p> <p>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.</p> <p>(PG 3)*</p>
8	Oct. 17	<p><u>Quiz 4 (fungi lab+ PG3)</u></p> <p>Protozoa observations (<i>Exercise #7</i>)</p> <p>Objectives: Compile information about several protozoa, and learn to distinguish among them based on unique physical characteristics.</p> <p>(PG 4)*</p>	Oct. 19	<p><u>Quiz 5 (protozoa lab+ PG4)</u></p> <p>Worms/Arthropods Lab observations (<i>Exercise #8</i>)</p> <p>Objectives: Compile information about several worms and arthropods, and learn to distinguish among them based on unique physical characteristics.</p> <p>(PG 5)*</p>
9	Oct. 24	<p><u>. Quiz 6 (worms/arthropods lab+ PG5)</u></p> <p><u>Exercise #9:</u></p> <p>Pure Culture Techniques Objectives: Isolate bacteria by using streak plate and pour plate techniques. Prepare and maintain a pure culture.</p>	Oct. 26	<p>Subculture for pure culture challenge points AND</p> <hr/> <p><u>Exercise #10:</u></p> <p>Perform isolation of “unknown bacterial pathogens” on specialized media (Complete parts A, B, & C)</p> <p>Objectives: Learn how to obtain clinical specimens, become familiar with culture media used to isolate pathogens, and make representative cultures.</p> <p>(PG 6)*</p>

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10	Oct. 31	<ol style="list-style-type: none"> 1. Record your results from previous lab 2. Perform <i>Exercise #11: More Lab Tests</i> (of the isolated “unknown bacterial UTI specimen”) <p>Objectives: Demonstrate biochemical characteristics, motility, and oxygen requirements of microorganisms.</p>	Nov. 2	<p><u>Quiz 7 (Lab Exercise 9 + PG 6)</u></p> <p>Record the results of the More Lab Tests of your UTI mystery microbe AND...</p> <p>The API 20E System (<i>Exercise #12</i>) is put to use for helping ID our “UTI pathogens</p> <p>Objectives: Understand the meaning of “enteric,” compare the media and conventional tube methods you've used, and learn to use the API 20E system.</p>
11	Nov. 7	<p>Record API 20E results to key out your “Unknown pathogen”</p> <p><i>Exercise #13:</i> Confirmation of the UTI results: confirm results!</p> <p>Objectives: Use results of exercises 10-13 to identify your mystery microbe.</p> <p><u>(PG 7)*</u></p>	Nov. 9	<p><u>Quiz 8 (Lab Exercises 10, 11, 12 and 13 + PG 7)</u></p> <p><i>Start ‘Control of Microbes’ with 3 Labs</i></p> <p>1. <i>Exercise #14: Antimicrobial Susceptibility Testing.</i></p> <p>Objectives: Learn to perform antimicrobial susceptibility tests using paper discs. Test effects of dyes and metals.</p>

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12	Nov. 14	<p>Record results of your team's S, I, R ratings.</p> <p>AND.....</p> <p>2. <i>Exercise #15:</i> Perform Heat, Cold, Drying, Radiant Energy Lab</p> <p>Objectives: Demonstrate the effectiveness of these control methods against common microorganisms.</p>	Nov. 16	<p>Record results of the entire class's S,I,R ratings and discuss.</p> <p>AND...</p> <p>Record class results of Heat, Cold, Drying, Radiant Energy Lab</p> <p>(PG 8)*</p>
13	Nov. 21	<p>3. <i>Exercise #16:</i> Perform Antibacterial Products Testing (each student brings a favorite antiseptic or disinfectant to test 😊).</p> <p>Objectives: Compare effectiveness of disinfectants, antiseptics, and cleaning products. Demonstrate the importance of time, concentration, and species.</p> <p>Write-Up this Lab Ex. 16 (optional); due on Dec. 7th at the beginning of lab class- to replace 1st Write-Up score to possible 40 pts.!</p>	Nov. 23	<p>Record results of antibacterial products tests.</p> <p>+ <u>Quiz 9 (Lab Exercises 14, 15 & 16 + PG8)</u></p>

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14	Nov. 28	<p><u>Exercise #17: Simulation of Disease Spread: an HIV epidemic + HIV antibody detection with enzyme linked immunosorbent (ELISA) assay!</u></p> <p>Objectives: Take part in synthetic epidemic, use ELISA to detect HIV antibodies, and use epidemiology to learn source of epidemic.</p> <p>(PG 9)*</p>	Nov. 30	<p><u>Exercise #18: Transformation of E. coli experiment</u></p> <p>Objectives: Perform genetic transformation of <i>E. coli</i> with a jellyfish gene that codes for a fluorescent protein.</p>
15	Dec. 5	<p>Record Transformation results</p> <hr/> <p><u>Exercise #19: Perform Milk/Water lab (each student brings)</u></p> <p>Objectives: Perform bacteriological testing procedures for water and milk, including testing for coliforms, membrane filtration, and plate counts.</p>	Dec. 7	<p>Record milk/water results</p> <p><u>Lab Quiz 10</u> (Lab Exercises 17, 18 & 19 + PG 9)</p>

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16		<p data-bbox="477 394 824 428"><u><i>FINAL EXAMS WEEK</i></u></p> <p data-bbox="477 474 834 764">The Pathogen Test is your Lab Final....check the final exam schedule for the time it will be given based on your lab meeting time during the semester.</p> <p data-bbox="477 848 863 949">YOUR LAB'S PATHOGEN TEST WILL BE</p> <p data-bbox="477 995 841 1024">DATE: _____</p> <p data-bbox="477 1029 841 1058">TIME: _____</p>		

* Date that **pathogen group (PG#)** should be completed so you'll be ready for the next quiz! Bring your charts for discussion/sharing.