

Lab	Day/Date	Topic <sup>1</sup>	Quiz / Assignment (points)
	We-Th 8/31-9/1	<i>No labs</i>	
1	We-Th 9/7-9/8	Overview, safety, check-in ( <b>crash list</b> ) <b>Exp 1: Microscopy</b> (Video and brightfield microscopy) 1A. Wet mounts (protozoa, cyanobacteria, hay infusion) 1B. Gram stain ( <i>Staphylococcus</i> , <i>Pseudomonas</i> , <i>Bacillus</i> )	1A Pre-lab questions (3) 1B Pre-lab questions (2)
2	Mo-Tu 9/12-9/13	<b>Exp 2: Bacterial growth</b> 2A. Isolation of single colonies <ul style="list-style-type: none"> <li>• Sterile technique (demo)</li> <li>• Streaking plates</li> <li>• Dilutions</li> </ul> 2B. Preparation of culture media	1 Post-lab questions (5) 2A Pre-lab questions (5)
3	We-Th 9/14-9/15	<ul style="list-style-type: none"> <li>• 2A (con't): Check results, gram stain, streak practice as needed</li> </ul> 2C. Growth curves ( <i>Vibrio natriegens</i> ) <ul style="list-style-type: none"> <li>• Turbidity measurements</li> <li>• Enumerating bacteria – serial dilutions, spread plates</li> </ul>	Dilution problems (15) 2C Pre-lab questions (5)
4	Mo-Tu 9/19-9/20	<ul style="list-style-type: none"> <li>• 2C (con't): Count colonies, data analysis</li> </ul>	Growth problems (10) 2 Post-lab questions (10) <i>Notebook check</i> (5)
5	We-Th 9/21-9/22	<b>Exp 3: Molecular phylogeny</b> (Computer assignment)	3 Pre-lab questions (5)
6	Mo-Tu 9/26-9/27	<b>Exp 4: Isolation of bacteria from the human body</b> 4A. Throat cultures / Blood agar ( <i>Streptococcus</i> ) 4B. Aerobic arm / hand / nose skin cultures ( <i>Staphylococcus</i> ) 4C. Anaerobic forehead skin culture ( <i>Propionibacterium</i> )	3 Post-lab questions (20) 4 Pre-lab questions (2)
7	We-Th 9/28-9/29	<ul style="list-style-type: none"> <li>• 4ABC (con't): Transfer cultures</li> </ul>	
8	Mo-Tu 10/3-10/4	<ul style="list-style-type: none"> <li>• 4ABC (con't): Microscopy (Gram, Acid Fast stains)</li> <li>• 4ABC (con't): Physiological tests</li> </ul>	<i>Bring soil samples for next lab period (rich soil, but not potting soil)</i>
9	We-Th 10/5-10/6	<ul style="list-style-type: none"> <li>• 4ABC (con't): Evaluate physiological tests</li> </ul> <b>Exp 5: Environmental microbiology</b> 5A. Detection of coliforms in environmental samples 5B. Enrichment for nitrogen fixing bacteria	4 Post-lab questions (4) 5A Pre-lab questions (2) 5B Pre-lab questions (2)
10	Mo-Tu 10/10-10/11	<ul style="list-style-type: none"> <li>• 4C (con't): Growth and physiological tests as needed</li> <li>• 5A (con't): Record coliform results / EMB plates</li> </ul> 5C. Isolation of antibiotic producing microbes from soil	<i>Notebook check</i> (5) 5C Pre-lab questions (2)

11	We-Th 10/12-10/13	<ul style="list-style-type: none"> <li>5A (con't): Record coliform results</li> <li>5B (con't): Subculture, microscopy, capsule stain</li> <li>5C (con't): Antibiotic production by soil microbes</li> </ul> 5D. Bacterial endospores <ul style="list-style-type: none"> <li>Differential heat resistance of <i>spo</i> mutants; Endospore stain</li> </ul>	5A Post-lab questions (3) 5D Pre-lab questions (2)
12	Mo-Tu 10/17-10/18	<ul style="list-style-type: none"> <li>5B (con't): Examine colonies</li> <li>5C (con't): Antibiotic sensitivity tests</li> <li>5D (con't): Count endospore colonies</li> </ul>	5B Post-lab questions (3) 5D Post-lab questions (3)
13	We-Th 10/19-10/20	<ul style="list-style-type: none"> <li>5C (con't): Evaluate Antibiotic sensitivity tests</li> </ul> <b>Exp 6: Identification of unknown bacteria</b> 6A. Streak unknown mixture for isolation of single colonies	5C Post-lab questions (3)  6A Pre-lab questions (3)
14	Mo-Tu 10/14-10/25	<ul style="list-style-type: none"> <li>6A (con't): Re-streak / Gram stain unknown culture</li> </ul>	<i>Notebook check</i> (5)
15	We-Th 10/26-10/27	<ul style="list-style-type: none"> <li>6A (con't): Re-streak / Gram stain if necessary</li> </ul> 6B. Unknown identification – physiological tests	6B Pre-lab questions (5)
16	Mo-Tu 10/31-11/1	<ul style="list-style-type: none"> <li>6B (con't): Physiological tests, motility tests</li> </ul>	
17	We-Th 11/2-11/3	<ul style="list-style-type: none"> <li>6B (con't) Physiological tests as needed</li> </ul> 6C. Use of Bergey's Manual	Physiological tests (15)
18	Mo-Tu 11/7-11/8	<ul style="list-style-type: none"> <li>6 (con't): Unknown identification as needed</li> </ul> <b>Exp 7. Molecular epidemiology of bacterial strains</b> <ul style="list-style-type: none"> <li>Exp 7A. Serotyping</li> <li>Exp 7B. Phage typing</li> </ul>	7AB Pre-lab questions (5)
19	We-Th 11/9-11/10	<b>Exp 8: Molecular genetics</b> 8A. UV damage and mutagenesis	7AB Post-lab questions (4) 8A Pre-lab questions (3)
20	Mo-Tu 11/14-11/15	<ul style="list-style-type: none"> <li>8A (con't): Evaluate results</li> </ul> 8B. Transduction and genetic mapping <ul style="list-style-type: none"> <li>Start phage lysate for transduction lab</li> </ul>	Exp 6 Report Due (40) 7B Pre-lab questions (3) 8B Pre-lab questions (3)
21	We-Th 11/16-11/17	<ul style="list-style-type: none"> <li>8A (con't): Evaluate UV results</li> <li>8B (con't): Titer phage lysates</li> </ul> 8C. Conjugation / complementation	8A Post-lab questions (7)  8C Pre-lab questions (3)
22	Mo-Tu 11/21-11/22	<ul style="list-style-type: none"> <li>8B (con't): Tally titration results and calculate MOI</li> <li>8B (con't): Transduction of Trp<sup>-</sup> bacteria</li> </ul>	MOI calculations (10)
	We-Th 11/23-11/24	<b>Thanksgiving holiday</b>	
23	Mo-Tu 11/28-11/29	<ul style="list-style-type: none"> <li>8B (con't): Replica print on antibiotic plates</li> </ul>	<i>Notebook check</i> (5)

		<ul style="list-style-type: none"> <li>• 8C (con't): Evaluate conjugation results</li> </ul>	8C Post-lab questions (3)
24	We-Th 11/30-12/1	<ul style="list-style-type: none"> <li>• 8B (con't): Count transductants, determine linkage</li> </ul> 8D. Natural transformation ( <i>Bacillus subtilis</i> )	8D Pre-lab questions (2)
25	Mo-Tu 12/5-12/6	<ul style="list-style-type: none"> <li>• 8D (con't): Replica plate transformants</li> </ul>	
26	We-Th 12/7-12/8	<ul style="list-style-type: none"> <li>• 8D (con't): Evaluate transformation results</li> </ul>	8D Post-lab questions (5)
27	Mo-Tu 12/12-12/13	Check-out <sup>2</sup>	Exp 8B Report due (30) <i>Final notebook check (5)</i>

<sup>1</sup> Experimental protocol posted on BlackBoard. Students are expected to print out all lab materials, read the lab materials before class, complete the pre-lab questions, and bring the lab materials to the lab class.

<sup>2</sup> Failure to turn-in lab keys or complete the lab check-out will result in an incomplete in the course.