

# MICROBIOLOGY LAB: BY231 Spring 2008

**Instructor:** Dr. Summer Silvieus ; AH308 ; [Silvisum@aquinas.edu](mailto:Silvisum@aquinas.edu) ; 616-632-2448

**Lab times:** Wednesday & Friday: 9:00-10:50 am in AH308

**Office Hours :** Monday, Tuesday, Thursday mornings 8-10:30am. Other times posted on office door.

**Text:** Leboffe MJ, Pierce BE. (2006) *Microbiology: Laboratory theory and application*. 2<sup>nd</sup> ed.  
Morton Publishing: Engelwood, Colorado. (ISBN: 0895827085)

## Lab Objectives:

After participation in this lab you will have the skills to successfully culture microorganisms, isolate bacteria from mixed cultures, execute various staining techniques, generate dichotomous keys, determine counts of microbes, and identify unknown microbes via biochemical tests.

## Lab Behavior:

Listen closely to instructions and for safety procedures. **No food or drink** is allowed in the lab room and should be left outside. Yes, this includes water bottles!  
**No open-toed shoes** or sandals. (Many of are chemicals / bacteria are not good for the skin). You are responsible for care and maintenance of your own microscope. **Clean up your own messes**. And don't run with sharp sticks or you'll poke someone's eye out.

## Laboratory attendance:

It is expected that you will attend all laboratory sessions during the semester. Repeated lateness or more than one unexcused absence will result in the lowering of your grade. However, a bonus of 5 points will be awarded if ALL labs are attended.

### Dichotomous keys : (5 points / 20 points)

Must contain all assigned organisms

Criteria used at each node may be visual characteristics, stains, or tests

Each node must divide the possible species into only two subgroups (dichotomous)

All tips must terminate into a single species

All species must have at least one confirmation test included at tip

Missing species and/or incorrect data will result in lost of points

### Unknown Identification : (25 points each)

You will not receive your unknown bacteria until your identification key has been approved

You may not ask professors or lab assistants about results of your tests or for other hints

You may have to spend time outside of lab to complete your unknown identifications

If class data conflicts, trust Bergey's Manual

Any unknown cultures left on the table at the end of lab time will be confiscated.

You may "purchase" a new culture of your unknown at the cost of 5 points.

You may guess the identity of your unknown bacteria cultures one at a time

EACH incorrect identification results in a loss of 5 points

EACH 24 hours late will result in a loss of 5 points

### Lab Skills Exam: (25 points)

Be able to correctly perform one or two of the following without instructions:

Negative stain, gram stain, spore stain, acid-fast stain, streak slant, streak plate isolation.

# LAB SCHEDULE

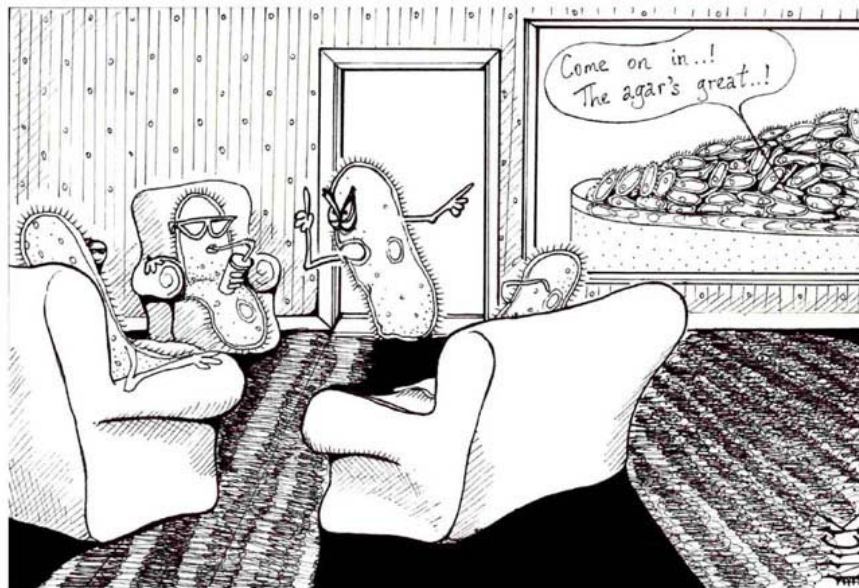
**\*\*\*\*\*READ THE LAB MANUAL BEFORE YOU COME TO LAB!!!\*\*\*\*\***

This deserves to be repeated....Read the lab manual before you come to lab!

<b>Date</b>	<b>Chapters</b>	<b>Topics</b>
9-Jan	Begin 1-2, 2-1	Aseptic technique, Ubiquity of bacteria
11-Jan	Begin 2-2, 2-3, 2-4 Finish 1-2, 2-1	Colony morphology, Growth on slants, Growth in broth
16-Jan	Begin 3-1, 3-4 Finish 2-4	Light microscopy, Smear prep and simple staining
18-Jan	3-5, 3-8	Negative staining, Capsule staining
23-Jan	3-6, 3-7, 3-12	Gram staining, Acid-fast staining, Key assigned
25-Jan	3-9	Endospore staining
<b>Begin Unknown work after key finished</b>		
30-Jan	11-1, 11-2	Fungi, Protists
1-Feb	Begin 1-3, 6-1	Streak plates, Standard plate count
6-Feb	Begin 2-6, 207, 2-8, 2-9 Finish 1-3, 6-1	Agar stabs, Agar shakes, FTM, Anaerobic jar
8-Feb	Begin 2-10, 2-11, 6-6 Finish 2-6, 2-7, 2-8, 2-9	Temperature, pH, Thermal death time
13-Feb	Begin 2-13, 2-14, 2-15 Finish 2-10, 2-11, 6-6	UV, disinfectants, hand scrubbing
15-Feb	Begin 6-4 Finish 2-13, 2-14, 2-15	Plaque assay
20-Feb	Begin 7-1, 7-3 Finish 6-4	Snyder test, Kirby-Bauer
22-Feb	Finish 7-1, 7-3	
27-Feb	<b>Unknown IDs due by end of class</b>	
29-Feb	<b>Practical Lab Exam I</b>	
3-Mar - 7-Mar	<b>Spring Break</b>	
12-Mar	Begin 4-1, 3, 4, 5, 6, 7, 8	Selective media using Class Controls
14-Mar	Begin 8-1 Finish 4-1, 3, 4, 5, 6, 7, 8	Water testing
19-Mar	<b>Staining Skill Exam</b> Finish 8-1	
21-Mar	<b>Easter Break</b>	

Date	Chapters	Topics
26-Mar	Begin 5-2, 4, 5, 6, 7, 8	Selective media using Class Controls
28-Mar	Begin 5-11, 12, 13, 14, 15, 16 Finish 5-2, 4,5,6,7,8	Differential media using Class Controls
2-Apr	Begin 5-17,18,21,24,26,27,28 Finish 5-11,12,13,14,15,16	Differential media using Class Controls
4-Apr	Begin 5-30 Finish 5-11,12,13,14,15,16 Begin work on Unknown key	Enterotubes
9-Apr	<b>Begin Unknown work after key is completed</b> Finish Enterotubes	
11-Apr	Work on Unknowns	
16-Apr	Work on Unknowns	
18-Apr	Work on Unknowns	
23-Apr	<b>Unknown IDs due by the end of class</b>	
25-Apr	<b>Practical Lab Exam II</b>	

**Points:** There are 250 points awarded in lab and this is worth 30% of your total grade in Microbiology. There are two lab exams (50 points each); there are four unknowns (25 points each); there is one staining skill exam (25 points); there are two dichotomous keys (25 points total).



*"I wish you'd learn to put the lid on your Petri dish, Harry! We came here with four kids, and now it looks like we've got twenty million...!!!"*