

**Spring 2008
3444 (Sections 002- 007)
General Microbiology Lab Syllabus**

Graduate TA:
Office Hours/Location:
Class day & Time: Monday – Thursday 2:00 – 4:50 p.m.

Email:
Room: LS 338 and 341

Lab Manual: Microbiology Laboratory Theory and Application: Second Edition.
Morton Publishing Company

Supplements: UTA 2460 Nursing Microbiology Lab Handouts
Available for purchase on the first day of lab from the GTA.
Price: \$10.00

**Lab Kits for Microbiology Lab – Purchase Price: \$10 available for
Purchase the first day of lab from GTA.**

Lab #	Dates	Topic/Title	Reading
1.	Jan. 28-31	Safety and Laboratory Guidelines Orientation & Safety Media Prep Evaluation of Media Microscopy Wet Mount Preparation Ubiquity of Microorganisms Bacteria Structure Aseptic Techniques	p.1-5 Handout Ex. 1-1 Ex. 2-5 Ex. 3-1 p. 76 Ex. 2-1 p. 77-80 Ex. 1-2
2.	Feb. 4 -7	Observation of Environmental Isolation Plates Colony Morphology Growth Patterns on Slants Growth Patterns in Broth Staining I Smear Preparation Simple Staining Gram Staining Acid-Fast Staining: Ziehl-Neelsen Method	Ex. 2-2 Ex. 2-3 Ex. 2-4 Ex. 3-4 Ex. 3-4 Ex. 3-6 Ex. 3-7
3.	Feb. 11-14	Gram Stain and Microscope Practical Staining II & Cultivation Capsule Staining Endospore Staining the Schaeffer-Fulton Method Pure Culture Techniques Streak Plate Methods of Isolation Quadrant Streak Method Examples of streaks on page 36-37 T-Streak	Ex. 3-8 Ex. 3-9 Ex. 1-3 p. 20-21 Handout

4.	Feb. 18-21	Culturing Anaerobes & Biochemical Tests I Read Aerotolerance section.....page 42 Fluid Thioglycollate Medium Ex. 2-8 Anaerobic Jar..... Ex. 2-9 Introduction to Energy Metabolism.....p. 128 Biochemical Tests: Differential Tests Fermentation Tests.....p. 131 Glucose - Phenol Red Broth.....Ex. 5-2 Methyl Red and Voges-Proskauer Tests Ex. 5-4 Test Identifying Microbial Ability to Respire Nitrate Reduction Test..... Ex. 5-7 Oxidase Test..... Ex. 5-6 Catalase..... Ex. 5-5 Media Reference Guide.....Handout
5.	Feb. 25-28	Biochemical Tests II Handouts on Gelatinase, TSIA, & SIM Handout Tests Detecting the Presence of Hydrolytic Enzymes.....p. 158 Starch Hydrolysis.....Ex. 5-13 Casease Test (Casein Hydrolysis).....Ex. 5-16 Urease Test.....Ex. 5-15 Gelatinase Test.....Ex. 5-17 Utilization Media.....p. 149 Citrate Test.....Ex. 5-8 Combination Differential Media.....p. 177 SIM Medium.....Ex. 5-20 Triple Sugar Iron Agar (TSIA).....Ex. 5-21
6.	Mar. 3-6	Midterm Streak Plate Practical Handouts on unknowns Handout Receive gram-negative unknown Hand-in notebooks (1st time)
7.	Mar. 10-13	Environmental Factors Affecting Microbial Growth Temperature: Effects on Microbial Growth Ex. 2-10 The Effect of pH on Bacterial Growth Ex. 2-11 The Effect of Osmotic Osmotic Pressure on Microbial Growth..... Ex. 2-12 Ultraviolet Light: Lethal Effects Ex. 2-13
March 17 – 20		SPRING BREAK
8.	Mar. 24-27	Control of Growth/Selective and Differential Media Medical Microbiologyp. 237 Bring antiseptic to lab to test Evaluation of Alcohol Handout Evaluation of Antiseptics..... Handout Antimicrobial Susceptibility Test: Kirby-Bauer Method Ex. 7-3 Pipette Handling---Appendix C and Appendix Dp. 349-346 Staphylococci & Streptococci..... Handout Slide Coagulase Test Ex 5-27 Selective/Differential Media..... Handout

Selective Media	p. 107
Mannitol Salt Agar	Ex. 4-1
Eosin Methylene Blue Agar.....	Ex. 4-5
MacConkey Agar.....	Ex. 4-7
Mitis Salavarius Agar.....	Handout

Differential Media:

Blood Agar.....	Ex. 5-26
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9. Mar. 31-Apr. 3 **Gram-negative unknown report due**
Receive mixed unknowns **Handout**

10. Apr. 7-10 **The Bacterial Growth Curve**
Growth Curve **Handout**
Standard Plate Count: (Viable Count).....Ex. 6-1
Spread Plate Method.....Ex. 1-4
Serial Dilutions..... **Handout**
Closed-System Growth.....Ex. 6-5
The Spectrophotometer.....p. 357-359

11. Apr. 14 - 17 Food Microbiology
Microbiology of Fermented Milk Products (Yogurt).....**Handout and Ex. 8.7**

Water Quality Microbiology	
Quantitative Techniques.....	p. 217-218
Standard Plate Count: (Viable Count)	Ex. 6-1
Serial Dilutions	Handout

Bacteriological Examination of Water: Qualitative Tests

Understand the purpose & nature of the tests..... **Handout**
Lab demonstrated by the Graduate Teaching Assistant ... Show an example of what E.coli looks like on EMB

Membrane Filter Technique.....	Ex. 8-1
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Working on Mixed Unknown
Notebook check (2nd time)

Apr. 21-24 **Clean up/Check-out**
Mixed unknown reports due
Final Lab Exam

You will be responsible for reading the designated exercises before coming to each week's lab. What you will actually be doing in the lab that day may vary somewhat from what is written in the lab manual. You will be informed of any changes made to the lab procedure at the beginning of that lab period.

Laboratory Policies

Attendance is required; **this will often include checking cultures 24-48 hours or more post-inoculation.** Missed labs can only be "made up" by having permission to attend another lab section the same week since equipment and supplies for each exercise are only available during the week the exercise is scheduled. As lab sections are full, you must obtain permission from both your Graduate TA and the Graduate TA of the alternative lab section you plan to attend prior to your making up the lab. Students with disabilities please contact your Graduate TA to discuss any special needs that you may have. **PLEASE DO NOT PLAN TO ATTEND ANOTHER LAB SECTION WITHOUT PRIOR PERMISSION.**

Grading

Weekly quizzes*	20%
Midterm	20%
Final	20%
Unknowns	20%
Practicals	15%
Notebook	5%
TOTAL	100%

*Weekly quizzes will typically be composed of approximately 60% material from the last week's lab and 40% from reading material assigned for that week's lab. The lowest quiz grade will be dropped before calculating the final lab grade. **The final exam will be comprehensive.**

"**A grade of I (incomplete)** may be assigned for a course if, in the opinion of the instructor, there are extenuating documentable circumstances which prevent the student from completing the required work within the semester of enrollment for the course. The incomplete must be removed by the end of the final examination period of the following semester, excluding the summer session, for the student to receive credit for the course. If the incomplete is not removed during the allotted time period, it will revert automatically to an F."

Lab Supplies

A loose leaf notebook is required in which you will accumulate any handouts, the lab lecture notes, the results and quizzes for each of the labs. This notebook will be graded twice during the semester.

Lab Kit

Individual components are available in the bookstore or you may purchase a kit from Phi Sigma (the Biology Graduate Student Society) and the Mu Sigma Microbiology Society. These items will be available for purchase of \$10. You may purchase these kits during the first couple weeks of lab.

- Inoculating loop
- Lens Paper (10-15 sheets)
- Bibulous paper (5-6 sheets)
- 10 glass microscope slides
- 1 Clothespin (spring-type, for holding slides)
- Matches

Aprons and Goggles must be worn at all time while in the lab – you will be given an apron and a pair of goggles to use during the semester, **but these items must be returned at the end of the semester. Please note that if you do not wear your lab apron and goggles, you may be asked to leave the lab.**

You will need the following for lab:

- Sharpie permanent marker
- Gloves will be provided if you wish to use them
- Lock for drawer (optional) - Please let the Graduate TA know which drawer you take.

IMPORTANT NOTE:

All microbiology lab students, please note that at the end of the semester, during the lab clean-up, if you do not clear out ALL ITEMS with your name, initials, and or lab section, from the cold room, hot room, incubators, lab drawers, and benches, you will receive 5 points off your overall lab grade.