

BIOLOGY 351
MICROBIAL SYSTEMS LAB SYLLABUS
Spring 2009

Lab coordinator: Shyama Malwane Phone: 895-3942

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Micro website: <http://www.unlv.edu/staff/wmojica>

Office Hours: Fri 12.00-1.00pm (Room 317 or 313)

Each lab section is taught under Shyama Malwane's supervision and the expectations are the same. Please contact your **lab instructor first** about any problems you may have with the lab.

Lab Sections:

Jensara Clay	L01	11.30am	-	2.20pm	WED
Jensara Clay	L02	2.30pm	-	5.20pm	WED
Chris Hensley	L04	8.30am	-	11.20am	TR
Chris Hensley	L05	2.30pm	-	5.20pm	TR

Assessment:

Lab Exam I -	120 points
Lab Reports -	120 points
Lab Exam II-	120 points
Unknown Lab Report -	150 points
Lab Quizzes -	80 points
Correct microscope use and wearing lab coat -	10 points
Total	600 points

Missing a total of 3 labs will assign a failing grade (0) for your lab. NO exceptions!

Lab Exams- There will be **all/some** of the following:

- Stations set up from material covered in lab
- Short answers/essays
- Multiple choice questions
- Demonstrating techniques
- Fill in the blanks
- True/False
- **There will be no study guides given and the exams will cover material ONLY from lab (TA pre-lab lecture, material covered in lab, UTA demos where applicable, your lab manual and lab reports)**

Lab Reports - You will write one lab report/discussion per week on a given lab exercise and hand it over to the TA to be graded. There will be a total of 12 lab reports (120 points). Complete each lab report after your lab. The TA will guide you regarding the format

of the report/discussion. These are mandatory! They will be collected weekly. Each week late will be 5 points off.

Lab Quizzes- You will have a quiz in lab the **first 5 minutes**. Each will be worth **8 points** and this will be part of your final grade. **Come prepared to the lab** by reading the lab manual. **The quiz will cover that week's material and/or the previous week's work if you will be reading results from the previous week. There will be NO MAKE-UP LAB QUIZZES OR EXTRA CREDIT QUIZZES.**

Unknown Lab Report - Each student will be given a mixture of two bacteria during the first week of lab. You will separate/isolate them and work on one along with the control cultures and tentatively identify the **Genus** and write up a lab report. The format of the lab report will be discussed in lab. This is due to your instructor the week before the final lab exam. *Each day late will be 10 points off!*

**TEXT: Microbiology Laboratory Theory and Application; second edition
Michael Leboffe and Burton Pierce : 2006
(Required)**

General Lab Rules-

✚ **NO FOOD OR DRINKS ALLOWED IN THE LAB.**

✚ **Lab Safety:**

1. **Read and understand the general safety guidelines on pages 1-5 and sign the bottom of the plagiarism sheet and turn it in to the instructor by the end of the first week. If you have any questions discuss it with your lab instructor.**
2. **Gloves will be available in lab. A lab coat is mandatory (you can buy a lab coat through a uniform store or bring an old shirt to wear over your clothes).**

✚ **Lab bench must be checked by instructor for cleanliness before you leave. Wipe the bench with chlorox before and after each lab.**

✚ **All your lab supplies will be in a shoe box in front of you. Put things away before leaving the lab.**

✚ **If you used a microscope please clean the lenses, stage etc. and lower the stage and put it away properly. If you leave a dirty microscope you will not get the 2.5 microscope points for that lab.**

✚ **Results must be initialed by the instructor. **You are responsible for comparing your results with the demo results whenever a demo is available.****

✚ **There will be NO MAKE-UP labs or lab exams for any reason.**

✚ **Your instructor will be better informed to guide you with your unknown bacterium. Therefore, try to attend the lab that you are assigned to. However, if you are unable to attend your lab for a valid reason inform your instructor and attend another lab the SAME week. Remember that another instructor may not let you sit in his/her lab if it is full.**

✚ **If you miss a lab you will lose points for those labs on your lab note book. Remember lab notebook accounts for a significant part of your grade.**

Cheating, Plagiarism, Academic Dishonesty and Copyright laws

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<http://www.unlv.edu/committees/copyright>

PLEASE READ AND SIGN THE LAST PAGE ON YOUR SYLLABUS (PLAGIARISM: WHAT EVERY STUDENT SHOULD KNOW) AND TURN IT IN BY THE END OF THE FIRST WEEK.

Disabilities

If you have a documented disability that may require assistance, you will need to contact the Disability Resource Center (DRC) for coordination in your academic accommodations. The DRC is the official office to review and house disability documentation for students, and to provide them with an official Academic Accommodation plan to present to the faculty if an accommodation is warranted. The DRC strongly encourages faculty to provide accommodations only if and when they are in receipt of said plan. The DRC is located in the Students Services Complex (SSC) in room 137. The DRC phone number is 895-0866 (TTY: 895-0652).

Holidays

It shall be the responsibility of the student to notify the instructor no later than the last day of late registration of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternative time would impose an undue hardship on the instructor or the university which could not reasonably have been avoided.

MICROBIOLOGY 351

Syllabus – 2009 Spring

<u>Lab/Date</u>	<u>Topics Covered</u>	<u>Exercises</u>
1 (01/14) WED	Syllabus/safety guidelines Basic Growth media : TSA/TSB Common Aseptic Transfers and Inoculation methods Streak plate Methods of Isolation Spread plate Method of Isolation Unknown: mix of two (SAVE for next week)	1-1 1-2 1-3 1-4
.....		
2 (01/21) THU <i>Quiz 1</i>	Selective media for Isolation of Gram + cocci Selective media for the Isolation of Gram – rods Two TSA streak plate of unknowns <i>Turn in signed Academic dishonesty/safety sheet</i>	4-1 4-3 to 4-8
.....		
3 (01/28) WED <i>Quiz 2</i>	Complete separation of the unknowns Colony morphology Do the stock slants- maintenance of the unknown 1 TSA streak plate and 1 NSM streak plate for next week Microscopy – light/phase Simple stains Eukaryotic microbes Demos: Capsule (negative stain) Acid fast stain Flagella stain (DEMOS will be available during the next lab)	2-2 3-1 3-4 3-3 3-8 3-7 2-12
.....		
4 (02/04) THU <i>Quiz 3</i>	Differential stain- Gram stain Endospore stain Complete 3-1 and 3-3 if not done from week 3 Plate to test for catalase and oxidase (streak plates) * Make a broth!	3-6 3-9 5-5, 5-6
.....		
5 (02/11) WED <i>Quiz 4</i>	<u>Diversity and Ubiquity of Microorganisms</u> Ubiquity of Microorganisms Growth patterns on slants Growth patterns in broth Catalase Test Oxidase Test Complete Gram stain/Endospore stain if not done Growth cycle- <i>Escherichia coli</i>	2-1 2-3 2-4 5-5 5-6 6-1, 6-5
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Lab/Date	Topics Covered	Exercises
6 (02/18)	<u>Aerotolerance:</u>	
THU	Agar Deep Stabs	2-6
<i>Quiz 5</i>	Fluid Thioglycollate Medium	2-8
	Anaerobic Jar	2-9
	Effect of Temperature on Microbial Growth	2-10
	Effect of pH on Bacterial Growth	2-11
	Effect of Osmotic Pressure on Microbial Growth	2-12
	Motility –soft agar deep/wet mount	3-10

7 (02/25) Wednesday: LAB EXAM I (Labs 1-5)

8 (03/04)	<i>Differential Tests Day I:</i>	
THU	<u>Fermentation Tests:</u>	
<i>Quiz 6</i>	Phenol Red Broth	5-2
	MR/VP Tests	5-4
	Nitrate Reduction Test	5-7
	Citrate Test	5-8
	<u>Tests Detecting Presence of Hydrolytic Enzymes:</u>	
	Starch Hydrolysis	5-13
	Urease Test	5-15
	Casease Test	5-16
	Gelatinase test	5-17
	Lipase Test (Using Egg Yolk Agar)	5-19
	Indole Test	

9(03/11)	<i>Differential Tests Day II:</i>	
WED	SIM Medium	5-20
<i>Quiz 7</i>	Litmus Milk Medium	5-23
	Bacitracin Susceptibility Test	5-24
	Kirby-Bauer Method (antibiotic evaluation)	7-3
	Blood Agar	5-26
	Coagulase Test	5-27
	Motility test	5-28

10(03/18) Work on unknown

11(03/25)	Food Microbiology	8-5,8-7
THU	<u>Purification and identification of plasmid DNA</u>	
<i>Quiz 8</i>	Plasmid mini preparation and restriction analysis	Handout
	Extraction of DNA from bacterial cells	Handout

Lab/Date Topics Covered Exercises

12 (04/01) PCR- (extracted DNA) Part I Handout
WED
Quiz 9 Electrophoresis of digested plasmid DNA Handout

04/06 – 04/10 Spring break

13 (04/15)
THUR Transformation Part I Handout
Quiz 10 Rapid Identification of Group A Strep Handout
PCR Part II (electrophoresis) Handout
Unknown reports due!

Transformation (Part II) Handout
14 (04/22) Review

15 (04/29) LAB EXAM II (Labs 6-13)
