

MacMurray

COLLEGE

Department of Biology

College of Natural Sciences

BIOL 209 - Microbiology

Lecture and Laboratory Course Syllabus – Spring 2012

Course Description:

BIOL 209 is an introduction to survey of bacteria, viruses, and other microorganisms particular importance to human health with emphasis on those involved in infectious disease. This course satisfies the Microbiology requirement for nursing programs and other related health fields.

Credit Hours: 4.0

Course Meeting Days, Times, and Location:

Tues Day Lec- 10.50 to 12.05 **Lab1 - 2.00 to 4.50**

Thurs Day Lec- 10.50 to 12.05 **Lab2 - 2.00 to 4.50**

Wednes day No Lecture **Lab3 - 2.00 to 4.50**

Instructor & Contact Information:

Dr. Srinivasan Durairaj (srini.durairaj@mac.edu Phone: 217-479-7096). My office is 16 in Julian Hall, and I keep formal office hours there **Wednesday 11.00-12.00**. You're welcome to stop by at other times also. E-mail is a reliable means of contacting me and I always welcome e-mail from students. You are always welcome to speak to me after class or send me e-mail to discuss anything relating to our course or to academics generally.

Text Book:

You will need the following texts for this course is available from the bookstore.

Microbiology by Jacquelyn Black (7th ed).

Microbiology Lab Manual: Alcamo's Laboratory Fundamentals of Microbiology

Course Objectives:

- Explain the view of microbiology as it applies to human health, infectious disease, and the role of microorganisms in our world.
- Understand the structure and function of prokaryotic cells and differentiate between Gram positive and Gram negative bacterial cell structure.
- Demonstrate proper use and care of microscope and other delicate lab instruments during laboratory exercise.
- Explain and compare the general concepts of bacteriology and virology, including the classification, microbial growth, microbial metabolism and genetics.
- Compare and contrast the control of microorganisms through physical and chemical agents and applying universal precautions in hospital and home setting.
- Understand and validate antibiotic use for the treatment of bacterial infections and apply the principles involved in antibiotic resistance.
- Distinguish between various disease causing microbes and how to effectively treat them.
- Identify unknown microorganisms using microbial techniques.
- List different types of host microbe interactions with an emphasis on human pathogens.
- To evaluate and identify immunological aspects associated with microbial pathogens.
- Understand molecular basis of viral infection and some aspects of viral diseases and their treatment.
- Understand the importance of microbiology and its relationship to other areas of life science and also in our daily lives and to critically think about microbes and information as presented in the common news media.

My responsibilities:

- To share with you my delight and amazement at the way that microbes work.
- To design course materials which effectively serve the course goals.
- To facilitate your learning as effectively as I know how.
- To design assessments (exams, grading criteria, etc) which are a reasonably accurate measure of your mastery of course content, and to use these materials to provide you with frequent feedback on your progress.
- To be available to you, and to listen to you with respect and attention

Your responsibilities:

- To commit the time and energy necessary to allow you to progress
- To manage your time effectively so that you can complete assignments on time and be prepared for class, for presentations, and for exams.
- To work collaboratively, cooperatively, and respectfully with your fellow students and with me.
- To seek help promptly with all issues on which you are confused
- It is the responsibility of the students to check the “MOODLE” for any notifications.

Grading Policy:

The lecture part makes up 75% of total grade. The lab makes up 25%.

- 3 unit exams @ 100 points each 300
- 1 comprehensive final exam 200
- 10 classroom/Take home Quizzes @ 20 points each 200
- 10Lab reports @ 25 points each 250
- **Total Points 950**
- **Grading Scale:**

Over 90% = A 80–89% = B 70–79% = C
 60–69% = D Under 60% = F

Grades are determined in the following manner:

$$\text{Percentage} = \frac{\text{Points earned}}{\text{Total points possible}}$$

For example, if on March 7th you have earned 215 points out of 265 possible points your percentage at that time is $(215/265) = 0.81 = 81\%$ which puts you at Grade- B.

- 1) I will not know your grade from day to day.
- 2) You should keep your own running total of points earned to determine your grade. (Create a binder/folder/box for graded work and make a point of checking your percentage once a week).
- 3) You will be empowered by knowing where you stand long before the end of the semester when you see your final grade.

Use the space below to record your point scores as the semester progresses. At any time during the course, you can assess how well you are doing. You need only to add up your achieved points and divide by the total number of points offered so far in the course. Then ask yourself if you can add points to the score because of your quizzes!

Quiz 1(20 pts) _____ Quiz 6(20 pts) _____ Lab1 (25 pts) _____ Lab6 (25 pts) _____

Quiz 2 (20 pts) _____ Quiz 7(20 pts) _____ Lab2 (25 pts) _____ Lab7 (25 pts) _____

Quiz 3 (20 pts) _____ Quiz 8(20 pts) _____ Lab3 (25 pts) _____ Lab8 (25 pts) _____

Quiz 4 (20 pts) _____ Quiz 9(20 pts) _____ Lab4 (25 pts) _____ Lab9 (25 pts) _____

Quiz 5 (20 pts) _____ Quiz10 (20 pts) _____ Lab5(25 pts) _____ Lab10(25 pts) _____

Exam I (100 pts) _____ Exam II (100 pts) _____ Exam III (100 pts) _____

Final Exam (200 pts) _____

There will be no posting of grades for tests/quizzes/or assignments. Test-answer sheets/Quizzes/ & assignments, once graded and recorded will be returned to you. This will help you keep track of how you are progressing toward your grade. However, it is now your responsibility to save them. Should you feel that the final grade you've been assigned at the end of the semester is wrong, you will need to bring in all your test-answer sheets/quizzes/& assignments, so we can check and see if an error was made in recording the scores or in adding up the points. Again I emphasize, **IT IS YOUR RESPONSIBILITY** to save all test-answer sheets/quizzes which have been returned. Without them as documentation the recorded grade will be assumed correct.

EXAM MAKE-UP POLICY:

If a student is unable to take an exam when scheduled, a make-up exam will be arranged **ONLY** if the instructor is notified **IN ADVANCE**. Students who fail to make appropriate arrangements will receive a grade of “0” for the exam missed. There will be no exceptions.

The Center for Learning Excellence (CLE):

The Center for Learning Excellence, located in the Education Complex, 2nd floor RM 208 offers *free* tutoring in a variety of subjects, including writing and math. It is a great place to go to study because help is available right when you need it! Students doing group work find plenty of room to work together with access to computers and printing. If you are interested in joining a study group, contact the staff in the Center for assistance. For more information, contact **Director, Jenny Briney at 479-7178 or Assistant Director, Dan Callihan at 479-7131.**

Monday	Tuesday	Wednesday	Thursday	Friday
12:00pm- 8:30pm	8:00am- 8:30pm	8:00am- 8:30pm	8:00am- 8:30pm	8:00am- 4:00pm

Attendance Policy:

This is a detailed, fast moving class. Missing lectures will hurt your grade because I test from lectures. Another advantage of attending class is participation in classroom discussions. We have the opportunity to learn from the unique experiences of every person in class. **Attendance is mandatory for exams and labs.** If there is a school activity conflict with these dates, you must provide **advanced** notice. Illness or family emergencies are cleared with the discretion of the instructor. For further information; see the statement on Class Attendance in the student handbook, *The Maggie*, on the MacMurray website, http://www.mac.edu/student_affairs/pdf/maggie.pdf. It is mandatory that you clean any space you used after every lab session.

Cell phone policy:

The classroom will be a cell phone-free zone, where students and instructors deserve uninterrupted time. It is expected that no phones will ring or vibrate audibly and **no texting** will occur during lecture OR lab hours in my class. **Texting or cell phone use of any kind during exams will result in a zero for the exam, no questions asked.** All pagers and cell phones are to be turned OFF during class and lab. No headphones are to be worn in either setting. Violators will be asked to leave the class session.

Academic Honesty Policy:

Making unacknowledged and unauthorized use of the work of others, whether from other students or from sources in print or online, is a matter of academic dishonesty and subject to penalty. The penalty is a grade of F, either for the work or for the entire course, at the instructor's discretion. Instances of academic dishonesty are also reported to the Academic Standards Committee, which may impose further penalties. For the full policy on academic dishonesty, see *The Maggie*.

Disability Services:

Students who need note takers, interpreters, un-timed tests, or other services for students with learning disabilities should contact Pamela Harrison, Coordinator of Disability Support Services, at 217-479-7176, e-mail Pamela.harrison@mac.edu.

TENTATIVE SCHEDULE:

WEEK	TOPICS	READING
1	Introduction to Microbiology <i>No Lab</i>	Chapter1
2	Microscopy & Staining Quiz-1 <i>Lab1: The Compound Microscope</i> <i>Cell Structure & Function</i>	Chapter3 <i>Exercise 3</i> <i>Handout</i>
3	Prokaryotic & Eukaryotic Cells Quiz-2 <i>Lab2: Culture Transfer Techniques</i> <i>Pure Culture Techniques</i>	Chapter4 <i>Exercise 1</i> <i>Exercise 2</i>
4	Microbial Metabolism TEST -1 2/2/2012 Chapters – 3, 4 & 5 <i>Lab3: Bacterial Smear & Simple Stain</i> <i>The Negative Stain Technique</i> <i>The Gram Stain Technique</i>	Chapter5 <i>Exercise 4</i> <i>Exercise 5</i> <i>Exercise 6</i>
5	Growth and Culturing Microorganisms Quiz-3 <i>Lab4: The Effect of Physical Agents on Bacteria</i> <i>The Effect of Chemical Agents on Bacteria</i>	Chapter6 <i>Exercise 11</i> <i>Exercise 12</i>

6	Microbial Genetics Quiz-4 <i>Lab5: Extraction of E.coli Genomic DNA</i>	Chapter7 <i>Qiagen Handout</i>
7	Gene Transfer & Genetic Engineering Quiz-5 <i>Lab6: Gene Cloning</i>	Chapter8 <i>Virtual Lab</i>
8	Sterilization & Disinfection TEST -2 3/1/2012 Chapters – 6, 7 & 8 <i>Lab7: Evaluation of Disinfectants and Antiseptics</i>	Chapter12 <i>Exercise 13</i>
9	SPRING BREAK – NO CLASS	
10	Antimicrobial Chemotherapy Quiz-6 <i>Lab8: The Effect of Antibiotics on Bacteria</i>	Chapter13 <i>Exercise 14</i>
11	Host-Microbe Relationships & Disease Processes Quiz-7 <i>Lab9: Bacterial Structural Characteristics</i>	Chapter14 <i>Exercise 24</i>
12	Epidemiology & Nosocomial Infections Quiz-8 <i>Lab10: Bacterial Culture Characteristics</i>	Chapter15 <i>Exercise 25</i>
13	Innate Host Defenses TEST -3 4/5/2012 Chapters – 12, 14 & 15 <i>Lab11: Biochemical Characteristics of Bacteria</i>	Chapter16 <i>Exercise 26</i>
14	Environmental Microbiology Quiz-9 <i>Lab12: Microbiology of Water A Simulated Epidemic</i>	Chapter25 <i>Exercise 33 Exercise 10</i>
15	Applied Microbiology Quiz-10	Chapter26
16	Applied Microbiology & Final Review 4/27/2012 Final Exam 12.00PM to 2.00PM	Chapter26

(Please note that material covered on each date may deviate slightly from this schedule and topics on each exam may change based on the rate the material is covered in class.)

Return this page to Dr. Durairaj in class by Jan31st for 5 points

I have read the BIOL209 Microbiology Syllabus and have paid careful attention to exam dates, the exam absence policy, the cell phone policy, and the grading policy. I understand that I can and should know my grade throughout the semester.

Signed _____

Date _____