

Microbiology 20
Fall 2013

West Los Angeles College
Mon/Weds 6:45-10 pm
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Office Hours Mon-Wed 6:30-6:45pm MSA 204

Text Tortora, Funke and Case. Microbiology: An Introduction
Benjamin Cummings, publisher
Benson, H.J. Microbiological Applications, Short Version

Course Description: This course is an introduction to the fundamental principles of microbiology. The laboratory portion of the course covers microscopic and cultural techniques for studying and identifying microorganisms.

Student Learning Objectives: Upon completion of the course, students are expected to understand:

1. The morphology, physiology and classification of bacteria, protozoa and fungi.
2. The structure and mode of multiplication of viruses.
3. Selected human diseases caused by bacteria, protozoa, fungi, parasitic worms and viruses.
4. The physical and chemical methods used to control microorganisms in our environment.
5. The molecular and cellular basis for the human immune response.
6. The principles of chemotherapy, hypersensitivity, immunization and serology.

Attendance is mandatory and roll will be taken. If you miss two consecutive sessions, you may be dropped from the class. If you decide to withdraw from the course, you must file the appropriate papers in the admissions office otherwise, a grade other than a "W" may appear on your transcript. If you add to the class, remember to hand in the add slips to the admissions office. There is a strong correlation between poor attendance and poor grades. **You are responsible for information, exam announcements, date changes, etc. presented in class, whether or not you are present**

Students who are given add slips must complete the process by the 3rd class meeting. No replacement add slips will be signed.

Withdrawal from Class:

You are responsible for your credit and enrollment status. Any student withdrawing from class must inform the admissions office of this decision. **Students failing to follow the correct procedure for withdrawals will receive a grade of "F" for the semester. Please check the dates for withdrawal.**

Assignments: read the appropriate lab exercises before you come to class (see attached schedule). Laboratory reports are usually due the same day that the results are read. Your time in laboratory is precious; complete the answers to the lab report questions at home.

Grades: Your grade in the course will be based on four midterm exams. Each test is worth 15% and 4 tests will be 60% of the course grade. Laboratory work contributes to 25% of the course grade, 12.5% of this will be for the unknown, the rest of the 12.5% will be for lab. All lab reports are to be turned in. The final exam is 15% of grade. The following curve will be used: A 92-100, B. 80-91 C 65-79 D. 50-64 F<50. There will not be any make up exams.

Exam Format

After the completion of each section there will be review questions on the subject matter discussed in the lectures, the relevant section from the textbooks and the laboratory exercises. The exam format for the first four tests will be essay and multiple-choice type of questions. The final exam will be multiple-choice. If you have missed a test, your lowest score will be duplicated to arrive at your final grade. There is no substitute for hard work but the following tips can help you. After the completion of each section, answer the questions for that section. You should understand the purpose of each laboratory exercise and work diligently during the labs.

Recommendations for Succeeding in Class:

- 1. Expect to Work. This is not supposed to be easy.**
- 2. Get to class on time, every time, and stay the whole time.**
 - Never miss class unless you're ill. Take good notes.
- 3. Find someone in the class to contact if you miss a meeting.**
- 4. Be organized! Use a daily calendar to set times for regular studying for each of your classes.**
- 5. Study & Review each night the class is given.**
 - Learning is easier if you schedule time daily to read, to think & review.
 - Every time you study. spend at least 10 minutes reviewing previous lessons.
(These "refresher shots" are the secret for long-term memory.)
 - Read the relevant chapters in your textbook; hi-light pertinent lines, & add these notes to your class notes (never read without writing).
 - Use associations to help you remember things.
 - Prepare note cards and carry them with you to review.
- 6. Begin preparing for your exams at least 1 week in advance.**
- 7. Anything you turn-in (exams, lab reports) should look neat.**

Tentative Schedule

Week of	Lecture Topic	Reading Assignment
8/26	Lab Orientation/Introduction	1 and 3
9/2-9/4	Cell Structure	4
9/9-9/16	Bacteria/Fungi Protozoa and Parasitic Worms	10, 11 & 12
9/23	Exam 1	7
9/30-10/2	Control of Microbial growth	7
10/7-10/14	Microbial metabolism and growth	5&6
10/16	Exam 2	
10/21-10/23	Viruses	13
10/28-10/30	Mechanisms of Pathogenicity	14
11/4-11/13	Host Defenses, Immune Response	15, 16, 17
11/18	Exam # 3,	
11/18-11/20	Immunization and hypersensitivity	18
11/18-11/27	Serology, antimicrobial drugs	19, 20
11/27	Exam # 4,	
12/2	Selected pathogens	21-26
12/9	Final exam	

Date	Week #	Laboratory Topic	Exercise
M 8/26	1	Lab Orientation Locker Check-in	
W 8/28		Use and Care of the Microscope	1
M 9/2	2	Holiday	
W 9/4		Ubiquity of Bacteria	6
		Aseptic Technique	8
M 9/9	3	Observations of Ubiquity of Bacteria and Aseptic Technique	6,8
W 9/11		Protozoa	5
M 9/16	4	Fungi	7
W 9/18		Helminths	(slides)
M 9/23	5	Smear Preparation	10
		Simple Staining	11
W 9/25		Gram Staining	14
M 9/30	6	Gram Staining	14
W 10/2		Spore Staining	15
M 10/7	7	Acid-Fast Staining	16
W 10/9		Pure Culture Techniques: Streak Plate Method (Isolation)	9
M 10/14	8	Pure Culture Techniques: Sub-culturing	9
W 10/16		Pure Culture Techniques: Evaluation	9
		UV Light: Lethal Effects	28
M 10/21	9	Observations of UV Light Lethal Effects	28
		Effects of Antiseptics: Filter Paper Disk Method	32
W 10/23		Observations of Effects of Antiseptics	32
		Effect of Temperature on Bacterial Growth	25
M 10/28	10	Observations of Effect of Temperature	25
W 10/30		Unknown Stock Preparation, Gram Stain and Streak Plate Colony Isolation	34
M 11/4	11	Unknown Cultural Characteristics and Working Stock Preparation	35
W 11/6		Unknown Cultural Characteristics and Working Stock Preparation	35
M 11/11	12	Holiday	
W 11/13		Mixed Acid and Butanediol Fermentation Tests (MR-VP), and Citrate Test	36
M 11/18	13	Observations of MR-VP and Citrate Tests	36
		Carb Fermentation and Catalase Tests	36
W 11/20		Observations of Carb Fermentation Test	36
		Starch Hydrolysis	37
		H ₂ S production (Kligler's Iron Agar)	38
M 11/25	14	Observations of Starch Hydrolysis and, H ₂ S production (Kligler's Iron Agar)	37 38
W 11/27		Unknown: Test catch up and Final Results	36 - 38
		Antimicrobial Sensitivity Testing	31
M 12/2	15	Observations of Antimicrobial Sensitivity Testing	31
W 12/4		Clean up and Locker Check-out	

Guidelines for Proper Care of the Microscope

THE MICROSCOPE IS AN EXPENSIVE AND DELICATE INSTRUMENT – IT DEMANDS PROPER USE AND CARE.

1. Before removing the microscope from the storage cabinet, observe the position of the microscope in the cabinet – note the number of the compartment/slot and how it corresponds to the number on the microscope.
→ **Use caution when removing the microscope from the cabinet. Avoid bumping the eyepieces on the upper shelf.**
2. Carry the microscope with TWO hands – one supporting the base and the other holding the arm. **Do not** support the microscope by the stage.
3. Place the microscope on the desk in front of you. Always check the holding screw that secures the head and re-tighten it, if needed. **Do not rotate the eyepiece head.**
4. Unwrap the cord and plug it in to the back of the microscope. Make sure the cord is not dangling over the desk and **plug** it into the electrical outlet.
5. It is best not to place your microscope on the desktop until any staining procedures are completely finished. This way, stain will not splash onto the microscope.
6. Be sure that any slide that you have prepared and stained is completely dry and no stain remains on the under side of the slide BEFORE placing it on the stage of the microscope.
7. Use **ONLY** lens paper and designated lens cleaner to clean the lenses of the microscope. **DO NOT** use KIMWIPES.
8. Always be careful **NOT** to turn objectives around in such a way that the end of the high power objective is dragged through the immersion oil that might be remaining on the slide. If this does occur by accident, **BE SURE TO REMOVE ALL OIL IMMEDIATELY** from the objective with lens paper and designated lens cleaner.
9. When you are finished using the microscope, perform the following **cleaning procedure**:
 1. Remove the slide.
 2. Clean oil off the lenses using **ONLY** lens paper and designated lens cleaner.
 3. Turn the nosepiece so that the 4X objective is in position.
 4. Lower the stage.
 5. Turn down the light intensity knob and switch off the light.
 6. Remove the cord from the outlet by properly pulling the end. Wrap the cord and place in the appropriate slot on the microscope
 7. Be sure to re-tighten the holding screws of the head, if necessary, before proceeding to put the microscope away.
 8. Return the microscope to its proper slot/compartment in the cabinet, in an angle. Make sure it is placed with the correct number Position the microscope so that the arm is facing **OUTWARD** and the eyepieces are facing **INWARD**.
→ **Use caution when inserting the microscope in the cabinet. Avoid pushing the eyepieces into the back wall of the cabinet.**
→ **Make sure all parts are placed correctly (i.e. filter). If there are any pieces that have fallen off or misplaced, please inform the instructor for directions.**
→ **At the beginning of every laboratory session, if you find the microscope has been improperly cared for please inform your instructor.**

WLAC Policy on Student Academic Honesty

(Adopted by the WLAC Academic Senate June 2006)

West Los Angeles College is committed to preparing students to compete confidently and effectively in a rapidly changing, information-driven, technological global community. Students are expected to be honest and ethical. No acceptable rationale for dishonesty can be based on physical, emotional or learning challenges. The college expects that students do their own academic work. Acceptable academic conduct does not include cheating, plagiarism or any other unethical academic behavior.

It is the student's responsibility to know what conduct is academically honest.

Original Critical Thinking

A student is expected to work independently. Written assignments and/or projects are to be individually accomplished unless there are specific instructions to work with another student or group of students.

Citing Others' Intellectual Work

Properly credit all sources of information using appropriate citation(s).

The following list includes some examples of academic dishonesty:

Plagiarism

- Submitting someone else's scholarly work, such as essays or term papers, as your own.
- Submitting someone else's artistic work as your own. (examples include musical compositions, computer programs, photographs, paintings, drawings)
- Copying, in part or in full, someone else's assignment.
- Including in your work without proper citation the ideas or language of another author.
- Including in your work without proper citation information downloaded from the Internet.

Test-taking

A student is expected to mentally isolate him/herself while taking quizzes and examinations. All responses will be based upon studied and memorized information, unless specifically instructed to use reference materials and/or specified notes.

The following list includes some examples of academic dishonesty:

Cheating

- Consulting concealed notes during a quiz, test or exam.
- Using unauthorized prepared materials during a quiz, test or exam.
- Receiving information or answers from another individual during a quiz, test or exam.

- Copying information or answers from a classmate's paper.
- Using electronic devices that have not been authorized by the instructor during a quiz, test or exam.
- Inventing data for a laboratory experiment or case study.
- Submitting work prepared previously for another course.
- Talking during a quiz, test, or exam.

Other examples of academic dishonesty:

- Providing your work for someone else to copy.
- Allowing a fellow student to use answers on your paper during a quiz, test or exam.
- Passing information to a fellow student during a quiz, test or exam.
- Purposely allowing a classmate to copy your original work product, such as answers to assignments, lab reports, term papers, etc.
- Stealing tests or examinations.
- Removing tests or exams from a campus facility without the permission of the instructor.

Violators of the WLAC Policy on Student Academic Honesty are subject to disciplinary action. Depending upon the seriousness of the violation, the disciplinary action may be any or all of the following:

- The instructor may warn the student that the conduct is a violation of the WLAC Policy on Student Academic Honesty.
- The instructor may give a zero score or an "F" grade for the assignment or exam. In the case of assignments which are not averaged into the course grade (such as extra credit assignments) the penalty may be the subtraction of the points the assignment is worth.
- The instructor may report in writing the academic dishonesty incident to the Office of Student Services to be placed in the student's disciplinary file.
- The instructor may send a written report to the Office of Student Services about the student's violation of the Standards of Student Conduct (LACCD Board Rule 9803.12), and request that the college initiate disciplinary action leading to the suspension of the student from the college or the expulsion of the student from the college and the entire district as authorized by LACCD Board Rule 91101.11b. In all instances, the student has the right of due process when charged with a violation of the Standards of Student Conduct. Details of the Student Grievance Procedure may be found in the West Los Angeles College catalog and in the Schedule of Classes in the section on student conduct.