WEST LOS ANGELES COLLEGE
MICROBIOLOGY 20 - General Microbiology – Section 1511

Instructor: Dr. Kareen Martin
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Lecture: MW 9:35am – 11:00am
Laboratory: MW 11:05am - 12:30 pm

Room: MSA 204

Office hours: 30 minutes after class

COURSE DESCRIPTION

This course is a four-unit introduction to the fundamental principles of microbiology. It will satisfy the microbiology requirement for UC and CSU. The prerequisites of the course include a basic biology course: **Biology 3 A and B** – Introduction to Biology lecture and laboratory. Many of the concepts introduced in fundamental biology and chemistry courses are brought together in the study of microbiology.

The course entails the study of microorganisms, including their structure, metabolism, methods of multiplying, and classification. The techniques used to control microorganisms and the human body's defenses against microbial attack are emphasized.

The laboratory covers the microscopic examination of microorganisms, aseptic techniques, cultivation of bacteria, the effects of antimicrobial agents, the influence of the environment on bacterial growth and cultural techniques for studying and identifying microorganisms.

PREREQUISITE VERIFICATION

A copy of official transcript showing successful completion of college level biological science course Biology 3 (or equivalent) must be submitted to the instructor by . A passing grade of C or higher is recommended. Please, highlight the course on the copy of the transcript. Failure to comply with this requirement may result in exclusion from the class.

STUDENT LEARNING OUTCOMES

As a result of taking this course, the student will: Practice critical thinking by describing: The morphology, physiology and classification of bacteria, protozoa and fungi The structure and mode of multiplication of viruses Selected human diseases caused by bacteria, protozoa, fungi, parasitc worms nad viruses The physical and chemical methods used to control microorganisms in our environment The molecular and cellular basis for the human immune response The principles of chemotherapy, hypersensitivity , immunization, and serology Achieve technical competency in the microbiology laboratory.

REQUIRED TEXT

1. Totora, Funke, Case. Microbiology: an Introduction, 14th edition., Benjamin Cummings Publishings Co. Brown, A.E.
2. Leboffe M.J. and Pierce B.E. *Microbiologicy. Laboratory Theory and Applications*, 3rd ed., Morton Publishing Co.

MATERIALS

- 8 scantrons Form 882 E – Each student is responsible to bring one to each examination (4 quizzes)
- Lab Coat (recommended)
- Gloves (recommended)
- Permanent marker (Sharpie)

ATTENDANCE

MISSING ANY CLASS OF THE FIRST WEEK of lecture or lab in the summer session without reasonable excused and without notifying the instructor will result in exclusion from the class. Consistent attendance to each laboratory is required for successful completion of this course. Attendance will be taken at the beginning of each class. If the student misses more than three classes, either lecture or lab, he/she may be dropped from the course. Coming late to class and leaving early is irresponsible, impolite, disruptive and is not acceptable. Of the student needs to be late, miss a class or leave early, please inform the instructor, preferable by email or before the class. Late students will be marked as absent, since attendance is taken at the beginning of the class and not after. Leaving early from the

class, will be noted and may count as absent. Any student wishing to withdraw from the course must follow the correct procedure with the admissions office. It is the student's responsibility to drop the course should he/she decide to stop attending, DO NOT rely on the instructor to do this. Students who stop attending class and fail to follow the correct procedure will receive the letter grade of the scores they have accumulated for the semester. Last day to withdraw is July 17th, 2014. Attendance points are earned by being in class and conducting appropriately. No walking in and out of class is permitted as it is rude and disruptive. Please notify the instructor if you miss a class due to illness or other emergency.

3 or less absences	20 points
4-5 absences	15 points
6-7 absences	10 points
8-9 absences	5 points
10 or more absences	0 points

GRADING POLICY

Lecture:	Exams (100 pts each)	400
	Assignments	25
	Disease presentation	50
	Attendance and Participation	20
Laboratory:	4 quizzes (20 points each)	80
	Lab notebook	100
	Unknown report	50
	***Estimated total points**	**725**

* This is an estimate of possible points and may be due to changes.

LECTURE EXAMS and LAB QUIZZES

- 4 exams (100 points each) and 4 quizzes (20 points each) will be administrated
- Exams and quizzes will consist of objective-type questions (true/false, multiple choice, matching, short written answers)
- See Calendar for dates and coverage of each exam and quiz.
- Each exam will be 1hr 30min long. No extra time will be permitted for late arrival. If a person arrives after the first student has handed in the exam, he/she may no longer take it and will have missed that exam.
- **Missed Exam**: All exams must be taken on the day decided by the instructor. **NO MAKE UP EXAMS** will be given. An absence to an exam or quiz is excused, **only** for documented illness, documented emergencies, or by prior arrangement with, and approval of the instructor. If the absence is excused, the score for the missed exam or quiz will be replaced with the average of the other 3. If the absence is not excused , the score will be ZERO. No exceptions.

LECTURE IN-CLASS ASSIGNMENTS

- Homework and in class assignments may be given during the semester. In-class work may consist of group assignments or extra credit.
- There will be no make up for missed in-class work or extra credit. In addition, none will be accepted late.

DISEASE PRESENTATION

- Details will be provided in a separate sheet.

LAB RECORD

- Each lab will be recorded in writing with a purpose, a material and methods, a result and a discussion sections. These questions will need to be answered online in the Etudes companion website.

- Details will be provided on a separate sheet
- Each lab is graded up to 5 points.
- Each lab is due on the Sunday following the completion of the lab. No late record will be accepted.

UNKNOWN REPORT

- Details will be provided on a separate sheet
- The unknown report should be submitted on **turnitin.com**. NO PLAGIARISM. Any plagiarism will result in zero. You will need to create an account if you do not have one already.
    - The class ID is **10500007**
    - Password: **gramnegative**
- The report should be submitted by Thursday, December 11th 11:59pm. NO LATE REPORTS. Reports posted later will not be accepted.

MICROSCOPE MAINTENANCE

- Microscopes are expensive and fragile. It is therefore essential to maintain them in good condition.
- Each student will be allocated a specific microscope and should follow the instructions given by the instructors when putting it away. Failure to do so will result in removal of points.

INCOMPLETES

Please note that "incomplete" grades are extremely rare. They ma only be considered if a student is passing a class with a C or better on the final drop date and is unable, due to an emergency, to complete the course as scheduled. Otherwise, is the students decides he/she cannot finish the course with a satisfactory grade, it is his/her responsibility to drop before JULY 17th.

IMPORTANT GENERAL RULES

- Because of the high volume of material covered in this course, class time is NOT allocated for in-depth discussion of exams or review of scores. Please schedule an appointment after class for any questions about exams.
- **NO cell phones or pagers are permitted**. If you bring your cell phone to class, be sure to have it in a mode where it will not ring and disturb others. IF you have to answer and emergency phone call, please step out of the classroom. Devices of this type should be placed on vibrate and never visible during class time, See the Attendance and Participation policy section above for class policy about walking in and out of the class. Any student who interrupts due to cell phones or pagers during lecture or lab may be asked to leave the class and this count as an absence.
- **NO guests, or children allowed in the classroom or during the lab.**
- **Students are required to arrive on time. Late arrivals or early departures** – please enter or exits as quietly as possible.
- Students are responsible for any assignments or information handed out and any announcements given during class in their absence.
- Absolutely no cheating will be tolerated. Students caught cheating will receive a zero for the assignment or examination and reported to the Academic Affairs office for disciplinary action.
- Grading on laboratory quizzes, exams, assignments, notebooks and participation will be determined by the instructor. The laboratory scores will be combined with the lecture scores to determine the final course grade. To have a tangible record of scores, students should save all graded and returned documents and keep track of their performance and progress in class.
- It is the responsibility of the student to be aware of the rules and regulations for student behavior as listed in the WLAC Catalo. Failure to comply with these regulations will result in the appropriate disciplinary action.
- Please, help keep the classroom and campus grounds clean. **No food or beverages are permitted inside instructional classrooms/laboratories**. Please use the appropriate receptacles to dispose of trash.

LETTERS OF RECOMMENDATION

Letters can be written for those students who receive an "A" in the course. Please allow instructor 2 weeks to complete the letter. No last minute letters.

STUDENTS WITH DISABILITIES AND/OR SPECIAL NEEDS

Students who feels she/he may need an academic accomodation based on the impact of a disability, should contact the Disabled Student Programs and Services (DSPS) at 310-287-4450 or visit their office in room Student Services Building (SSB 320).

ACADEMIC HONESTY POLICY

Pursuant to West Los Angles College's "Standards of Student Conduct", all forms of cheating and plagiarism are absolutely forbidden. Since dishonesty in any form harms the individual, other students and the college, policies on academic integrity are strictly enforced. Students should read WLAC's publication on student conduct on cheating & plagiarism outlined in the college Catalog.

Each student is expected to do his/her own work on all assignments, lab write-ups, examinations, etc. What follows is the WLAC Policy on Student Academic Honesty (Adopted by the WLAC Academic Senate June 2006).

Here is a list of some actions that are considered cheating:

- Talking during an exam
- Copying answers from someone else's paper
- Using notes of any kind during an exam
- Showing a fellow student your exam or passing information
- Turning in someone else's work
- Providing your work for someone else to copy
- Taking a call on your cell phone (please turn them off!)
- **Plagiarism** (Plagiarism is defined as the use, without giving reasonable and appropriate credit to, or acknowledging the author or source, of another person's original work)

If you have a question during an exam, quietly walk up to the instructor and whisper your question. **Translation dictionaries are <u>not permitted</u> during exams. <u>No electronic devices</u> of any kind are permitted during exams. Exiting the room during an exam is <u>not permitted, this also includes going to the restrooms.</u>**

SCIENCE DIVISION POLICY ON STUDENT CONDUCT IN CLASSROOM

1. Be honest and ethical; follow the rules described in the college's policy on academic honesty.
2. Arrive before the start of class; wait until the previous class has been dismissed before entering the classroom.
3. Whenever you arrive to class late, open the door *quietly*, enter *quietly*, and close the door *quietly* so as not to disturb the class in session. Then, take a seat near the door, on the side or at the back of the classroom. <u>Never</u> walk in front of the instructor.
4. Do not eat or drink beverages in the classroom.
5. No gum chewing.
6. Sharpen pencils before class starts. Do not sharpen pencils during lecture.
7. Listen carefully when directions and announcements are being given. You are responsible for all information announced whether or not you were absent, tardy, or not paying attention.
8. Turn off or mute cell phones before entering the classroom.
9. Do not answer cell phones during class.
10. Do not leave the classroom during the lecture. Wait until the class is dismissed.
11. No talking during lecture. Do not chat with your classmates at any time during lecture, including during the time your instructor is putting information on the chalkboard.
12. Raise your hand and wait for recognition by the instructor to ask a question during lecture.
13. During the class, do not interrupt the instructor with personal questions. Wait until the class has been dismissed.

<u>Consequences of Misconduct</u>

Violators of these rules are subject to disciplinary action under Board Rule 9803.15 of the Los Angeles Community College District. Depending upon the seriousness of the conduct, the student disciplinary procedures may range from a warning to removal from the class with a referral to the Vice President of the College.

SUGGESTIONS FOR SUCCESS IN MICROBIOLOGY 20

- Expect to work hard and dedicate time to the class.
- Try to take good notes and be organized with all course material.
- When turning in assignments, make sure they are legible and neat.
- Come to class prepared, print the lecture PowerPoint and read the lab procedures before class.
- Keep-up with course material as you go, do not wait until the week before the test to start studying.
- Make time to study, pencil it inn your schedule. Also write down test days, and assignment due dates in a calendar.
- For each lecture read the assigned chapter, and make a note of any questions.
- Review your study materials. Many terms and concepts presented in class need to be reviewed and repeated for complete understanding of the material. Some students find it useful to make flash cards for terms and concepts.
- Take study breaks. Studying is more effective when done frequently in small blocks of time rather than continuously for several hours once a week.
- Take advantage of office hours and come prepared with questions you have formulated from the reading or other assignments.
- Use time in lab effectively. Read the lab exercises before coming to lab so that you know what you will be doing.
- Complete lab reports in lab so that you can ask questions and work when the information is fresh in your mind.
- After each exam, review the material that you missed or did not completely understand. Some information in this course is cumulative. Additionally, many topics presented in microbiology are foundation for other classes in the biological sciences. Learning the information as you go will help you understand future topics.

Lecture and Laboratory Schedule

WEEK	Dates	LECTURE TOPIC	• LAB TOPIC	Lab Manual Section
1	M Aug 31	• Course Overview • Introduction to Microbiology **1**	• Lab Orientation - Locker Check-in • Ubiquity of Bacteria	2-1
	W Sep 2	• The Chemistry of Microbiology **2**	• Observations of Ubiquity of Microorganisms • Aseptic Techniques and Inoculation	2-1 1-3
2	**M Sep 7**	**LABOR DAY**	**NO CLASS**	
	W Sep 9	• Cell Structure and Function **4**	• Observations of Ubiquity of Aseptic Techniques and Inoculation	1-3
3	M Sep 14	• Microbial Metabolism I **5**	• Use and Care of a Light Microscope	3-1
	W Sep 16	• Microbial Metabolism II **5**	**QUIZ 1: Exercises 2-1, 1-3, 3-1** • Examination of Microscopic Eukaryotes: Fungi	3-3, 12-1
4	M Sep 21	• Microbial Growth **6**	• Examination of Microscopic Eukaryotes: Protists	3-3, 3-4, 12-3
	W Sep 23	**EXAM #1** **Chapters 1, 2, 4 5 and 6**	• Parasitic Helminths	12-4
5	M Sep 28	• Controlling Microbial Growth I **7**	• Smear Preparation and Simple Staining	3-5
	W Sep 30	• Controlling Microbial Growth II **7** • Microbial Genetics I **8**	• Gram staining	3-7
6	M Oct 5	• Microbial Genetics II **8**	• Gram staining	3-7
	W Oct 7	• Microbial Genetics III **8** • **In-class Assignment: Genetics**	**QUIZ 2: Exercises 3-3, 3-4, 12-3, 12-4, 3-5, 3-7** • Acid-Fast Staining	3-8
7	**M Oct 12**	• Characterizing and Classifying Viruses, Viroids, and Prions I **13**	• Endospore Staining	3-10
	W Oct 14	• Infection, Infectious Diseases, and Epidemiology **14**	• Pure Culture Techniques: Streak Plate Method and Isolation	1-4
8	M Oct 19	• Microbial Mechanisms of Pathogenicity **15**	• Streak Plate Method: Sub-culturing	1-4
	W Oct 21	**EXAM #2** **Chapters 7, 8, 13, 14, 15**	• Streak Plate Method: Evaluation • Effect of Temperature on Microbial Growth	1-4 2-9
9	M Oct 26	• Innate Immunity **16**	• Observation of Effect of Temperature • Lethal Effect of UV Radiation on Microbial Growth	2-9 2-13
	W Oct 28	• Adaptive Immunity I **17**	• Observation of Effect of UV Radiation • Chemical Germicides: Effects of Disinfectants and Antiseptics	2-13 2-14
10	M Nov 2	• Adaptive Immunity II **17** • Vaccines (Application of Immunology) **18**	• Observation of chemical Germicides	2-14
	W Nov 4	• Immunological Disorders **19**	**QUIZ 3: Exercises 3-10, 1-4, 2-9, 2-13, 2-14** **<u>Unknown:</u>** • Gram Staining and Streak Plate Colony Isolation	
11	M Nov 9	• Antimicrobial Drugs **20**	**<u>Unknown:</u>** • Gram Staining and Streak Plate Colony Isolation	
	W Nov 11	**Veteran's Day**	**NO CLASS**	
12	M Nov 16	• **Catch up day**	**<u>Unknown:</u>** • Macroscopic Characteristics and Working Stock Preparation	
	W Nov 18	**EXAM #3** **Chapters 16, 17, 18, 19, 20**	**<u>Unknown:</u>** • Mixed Acid and Butanediol Fermentation Tests (MR-VP) and Citrate Utilization Test	5-4, 5-9

13	M Nov 23	• **Student Presentations:** • Microbial Diseases of the Skin and Wounds **21**	**Unknown:** • Observation of MR-VP and Citrate Tests • Carbohydrate Fermentation Test: Phenol Red Broth	5-4, 5-9 5-3
	W Nov 25	• **Student Presentations:** • Microbial Diseases of the Nervous System **22**	**Unknown:** • Observation of Carbohydrate Fermentation Test • Catalase Test	5-3 5-6
14	M Nov 30	• **Student Presentations:** • Microbial Diseases of the Respiratory System **24**	**Unknown:** • Starch Hydrolysis: Amylase Test • H_2S Production: Kligler's Iron Agar	5-13 5-21
	W Dec 2	• **Student Presentations:** • Microbial Diseases of the Digestive System **25**	**Unknown:** • Results of Starch Hydrolysis and H_2S Production • Unknown Test catch-up	5-13, 5-21
15	M Dec 7	• **Student Presentations:** • Microbial Diseases of the Genitourinary System **26**	• Antimicrobial Susceptibility Test • Unknown test catch-up and final results	7-3
	W Dec 9	• **In class assignment**	**QUIZ 4 Exercises 5-4, 5-9, 5-3, 5-6, 5-13, 5-21, 7-3** • Observation of Antimicrobical Susceptibility • Clean up and Locker Chek out • **UNKNOWN REPORT DUE**	7-3
16	M Dec 14	**EXAM #4** **Chapters 21, 22, 24, 24, 26**		