

Microbiology 20: General Microbiology
West Los Angeles College - Spring 2014

Instructor: Dr. Lauri Escudero
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Office Phone #: 310-287-4271
Office hours: M/W 11:15am – 12:30pm
Tu/Th 9:00am – 10:30am

Section #: 1510
Lecture: MSA 202 M/W 1:00pm – 2:25pm
Laboratory: MSA 204 M/W 2:45pm – 4:10pm

**To request appointments, please email instructor

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 anti-microbial agents, the influence of the environment on bacterial growth and cultural techniques for studying and identifying microorganisms.

Prerequisite Verification:

A copy of a transcript showing successful completion of college-level biological science course Biology 3, (or equivalent) must be submitted to the instructor by **February 20th, 2014**. A passing grade of C or higher is accepted, but B or better is recommended. Highlight your name and the course with the respective grade. **Failure to comply may result in exclusion from the class.**

Student Learning Outcomes:

As a result of taking this course, the student will:

1. 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, parasitic worms and 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
2. Achieve technical competency in the microbiology laboratory

Required Text:

1. Tortora, Funke, Case. *Microbiology: an Introduction*, 11th ed., Benjamin Cummings Publishing Co.
2. Brown, A.E. *Benson's Microbiological Applications*, Short Version, 12th ed., McGraw-Hill Science/Engineering/Math Publishing Co.

Materials:

1. 8 Scantrons Form 882 E – Each student is responsible to turn them in before March 3rd (for 4 quizzes and 4 exams)
2. Quad Composition Notebook – center-sewn hard cover, not college ruled, not perforated sheet notebooks
3. Lab Coat (recommended)
4. Gloves (recommended)
5. Permanent marker (Sharpie)
6. Colored pencils – for laboratory notebook drawings (No felt-tip pens)
7. Blue or black pen for lab notebook, no pencils or other colors allowed
8. Highlighter

Attendance:

MISSING ANY CLASS OF THE FIRST WEEK of lecture OR lab, without a reasonable excuse and without notifying the instructor, will result in immediate exclusion from the class.

Consistent attendance to each lecture and laboratory is required for successful completion of this course. Attendance will be taken at the beginning of each class. If a student misses more than three classes, either lecture OR lab, he/she may be dropped from the course. Coming late to class or leaving early is irresponsible, impolite, disruptive, and not acceptable. If a student *needs* to be late, miss a class or leave early, please inform the instructor, preferably by email and 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 an absence.

Walking in and out of class is rude and disruptive. Any student who does this excessively may be asked to leave the class and will count as an absence. **Please notify the instructor** if you will miss a class due to illness or other emergency.

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 for this. Students who stop attending class and fail to follow the correct procedure will receive the letter grade of the scores accumulated for the semester. No withdrawals are permitted after May 9th, 2013. Attendance points are earned by being in class and conducting appropriately. Attendance points are earned as follow:

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

Email Correspondence:

- Electronic mail is the official method of communication. Students' LACCD academic e-mail addresses are recorded in the college's electronic directories and records. Please, make sure to check it often.
- **E-mails to the instructor need to have the name of the course and section in the subject, and should be addressed with appropriate salutation so that is clear that the message is not junk mail. Emails will be normally replied within 24 hours only on weekdays. E-mail messages that are poorly written, unclear or disrespectful will not be replied to.**

Testing and Grading:

Points may be earned from the following:

Lecture:	Exams (100 pts each)	400
	In-class/Homework	25
	Disease Presentation	50
	Attendance and Participation	20
Laboratory:	Quizzes (20 pts each)	80
	Lab Notebook	100
	<u>Unknown Report</u>	<u>50</u>
	Estimated total points	*725

*Note: this is an estimate of possible points and it is subject to change

Calculating your grade: You may calculate your grade at any time during the semester. Simply sum all your quizzes, assignments and exam scores. Then, divide this sum by the total number of points you could have earned if you had gotten 100% on everything. For example, if you earn 160 points of a possible 175 points, at that time in the semester your grade is $160/175 = 0.914$ or 91.4%.

Grading scale:

Grade	Percentage
A	90% – 100%
B	80% – 89%
C	70% – 79%
D	60% – 69%
F	0% – 59%

Lecture Exams and Lab Quizzes:

See schedule for dates and material for each exam. Exams will cover the material discussed from lecture notes and all the assigned reading. The exams will consist of multiple choice, matching, and short-answer questions. All exams are to be taken on time. Lab quizzes will be based on lab exercises, including procedures and results previous to the day of the quiz. All quizzes and exams will be given at the beginning of the period. Exams are approximately 1.5 hours and quizzes are of approximately 20 minutes each. If a student comes in after the first student has handed in the exam or quiz, he/she may no longer take it and will have missed that exam or quiz.

Exam Absence Policy: Makeup exams will not be given. An absence to a midterm exam or a quiz can be excused, **only** for documented illnesses, documented emergencies, or by prior arrangement with, and approval of the instructor. If the absence is excused, the score of the missed midterm exam or quiz will be replaced with the average of the other 3, including the final. If the absence is unexcused, the score will be ZERO. If a second exam or quiz is missed, it will be recorded as a ZERO. An absence to the final exam will not be excused and the score will be ZERO. If there are documented, extraordinary circumstances that do not allow a student to take the final exam, the student needs to contact and inform the instructor immediately. After the instructor evaluates the circumstances, an incomplete grade will be considered. These cases are extremely rare. Please read the incomplete policy below. There will be no exceptions.

Incompletes: Please note that “Incomplete” grades are extremely rare. They may only be considered if a student is passing the 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, if the student decides he/she cannot finish the course with a satisfactory grade, it is his/her responsibility to withdraw officially, on or before May 9th.

Homeworks and In-class Work: Homework and in-class work might be given during the semester. In-class work may consist of group assignments. There will be no makeup for missed in-class work. In addition, none will be accepted late.

Late Notebooks and Reports: Any late assignments will be penalized by subtracting 10% from the total score, per day late (includes non-meeting days and weekends). Turning in the assignment after class, even if it is the same day, will also be penalized with 10% subtraction.

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 for any questions about exams.
- There is no extra credit.
- 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 an *emergency* phone call, please step out of the classroom quietly. Devices of this type should be placed on silent or vibrate and never visible during class time. See the Attendance 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 will count as an absence.
- No guests, or children are allowed in the classroom or during lab.
- Students are required to arrive in time. Late arrivals or early departures – please enter or exit as quietly as possible. See the Attendance section above for class policy.
- Students are responsible for any assignments, information or 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. See Academic Honesty Policy below.
- 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 Catalog. Failure to comply with these regulations will result in the appropriate disciplinary action.
- Audio recorders are allowed. If a cell phone is used as a recorder, it needs to be on airplane mode.

Students with Disabilities and/or Special Needs:

Any student who feels she/he may need an academic accommodation based on the impact of a disability, should contact Disabled Students 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 Angeles 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 or at http://www.wlac.edu/academics/pdf/WLAC_10-12Catalog_Policies.pdf.

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.

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 (see the lecture and lab schedule for details).
- 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 into your schedule. Also write down test days, and assignment due dates on your 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.
- Find a study partner or small study group.
- 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. Please attend office hours to review your exam. Some information in this course is cumulative. Additionally, many of the topics presented in microbiology are a foundation for other classes in the biological sciences. Learning the information as you go will help you understand future topics.

Lecture and Laboratory Schedule

Date	Week #	Lecture Topic	Assigned Chapter	Laboratory Topic	Exercise
M 2/10	1	Course Overview Introduction to Microbiology	1	Lab Orientation Locker Check-in	
W 2/12		The Chemistry of Microbiology	2	Use and Care of the Microscope	1
M 2/17	2	Holiday – Presidents' Day			
W 2/19		Cell Structure and Function	4	Ubiquity of Bacteria Aseptic Technique	6 8
M 2/24	3	Microbial Metabolism I	5	Observations of Ubiquity of Bacteria and Aseptic Technique	6,8
W 2/26		Microbial Metabolism II	5	Protozoa	5
M 3/3	4	Microbial Growth	6	Fungi	7
W 3/5		Catch-up day		Quiz #1: Exercises 1, 6, 8, 5 and 7 Notebooks Due Helminths	(slides)
M 3/10	5	Exam #1 Chapters: 1-2, 4-6		Smear Preparation Simple Staining	10 11
W 3/12		Microbial Genetics I	8	Gram Staining	14
M 3/17	6	Microbial Genetics II	8	Gram Staining	14
W 3/19		Characterizing and Classifying Viruses, Viroids, and Prions	13	Spore Staining	15
M 3/24	7	Infection, Infectious Diseases, and Epidemiology	14	Acid-Fast Staining	16
W 3/26		Microbial Mechanisms of Pathogenicity	15	Quiz #2: Exercises 10-11, 14-16, Helminths Notebooks Due Pure Culture Techniques: Streak Plate Method (Isolation)	9
M 3/31	8	Holiday – César Chávez Day			
W 4/2		Catch-up day		Pure Culture Techniques: Sub-culturing	9
M 4/7		SPRING BREAK			
W 4/9		SPRING BREAK			
M 4/14	9	Exam #2 Chapters: 7-8, 13-15		Pure Culture Techniques: Evaluation UV Light: Lethal Effects	9 28
W 4/16		Innate Immunity	16	Observations of UV Light Lethal Effects Effects of Antiseptics: Filter Paper Disk Method	28 32
M 4/21	10	Adaptive Immunity	17	Observations of Effects of Antiseptics Effect of Temperature on Bacterial Growth	32 25
W 4/23		Vaccines Immunological Disorders	18 (part) 19 (part)	Observations of Effect of Temperature Unknown Introduction	25 Handout

M 4/28	11	Antimicrobial Drugs	20	Unknown: Stock Preparation, Gram Stain and Streak Plate Colony Isolation	34
W 4/30		Catch-up day		Quiz #3: Exercises 9, 28, 32, 25 Notebooks Due Unknown: Cultural Characteristics and Working Stock Preparation	35
M 5/5	12	Exam #3 Chapters: 16-17, 18-19(part), 20		Unknown: Carb Fermentation and Catalase Tests	36
W 5/7		Student Presentations: Microbial Diseases of the Skin and Wounds	21	Unknown: Observations of Carb Fermentation Test Mixed Acid and Butanediol Fermentation Tests (MR-VP), and Citrate Test	36 36
M 5/12	13	Student Presentations: Microbial Diseases of the Nervous System	22	Unknown: Observations of MR-VP and Citrate Tests	36
W 5/14		Student Presentations: Microbial Diseases of the Respiratory System	24	Unknown: Starch Hydrolysis H ₂ S production (Kligler's Iron Agar)	37 38
M 5/19	14	Student Presentations: Microbial Diseases of the Digestive System	25	Unknown: Observations of Starch Hydrolysis and, H ₂ S production (Kligler's Iron Agar) Test catch up and Final Results	37 38
W 5/21		Student Presentations: Microbial Diseases of the Urinary and Reproductive Systems	26	Antimicrobial Sensitivity Testing	31
M 5/26	15	Holiday – Memorial Day			
W 5/28		In-class Assignment: Microbial Diseases		Observations of Antimicrobial Sensitivity Quiz #4: Exercises 34-38 and 31 Notebooks Due Unknown Report Due Clean up and Locker Check-out	31
M 6/9	16 Finals Week	Exam #4 1:45pm – 3:45pm			

Note: This schedule is subject to change at the discretion of the instructor.

Important Dates

Last day to drop classes with a refund/no fee: February 21st
 Last day to drop classes w/o a "W": February 21st
 Last day to drop classes with a "W": May 9th
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