West Los Angeles College Spring 2015

MICROBIOLOGY 20
General Microbiology - Section

Instructor: Kareen Martin
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Laboratory: M-W 11:05am - 12:30 pm

Office hours: After class **in room MSB211 (ext 8283)** **Room**: MSA 204

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:

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, 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
2. Achieve technical competency in the microbiology laboratory.

REQUIRED TEXT

1. 1. Leboffe M.J. and Pierce B.E. *Microbiologicy. Laboratory Theory and Applications*, 3rd ed., Morton Publishing Co.

MATERIALS

1. 4 scantrons Form 882 E – Each student is responsible to bring one to each examination (4 quizzes)
2. Quadrangle Composition Book
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.

ATTENDANCE

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.

GRADING POLICY

4 quizzes (10 points each)	80
Lab record	100
Unknown report	50
Total points	**130**

QUIZZES:

- Quizzes will be taken at the start of class.
- Extra time will not be permitted for those who are late.
- NO MAKE- QUIZ.
- Quiz may consist of true/false questions, matching, multiple choices, short-answer questions.
- Purchase your scantrons (882-E) ahead of time for your quizzes.

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 **9492811**
  - Password: gramnegative
- The report should be submitted by Wednesday, May 27th 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. The position of the stage, the position of the lens, the position of the switch and cord, the removal of oil from lens and other conditions will be recorded after each lab, Failure to follow the instructions will result in removal of points (1 point per error).

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MICROBIOLOGY 20 - LAB SCHEDULE

WEEK	Dates	Lab Topic	Lab Manual
1	Mon Feb 9	Lab Orientation - Locker Check-in Ubiquity of microorganisms	2.1
	Wed Feb 11	Observation of Ubiquity of microorganisms Aseptic Transfer and Inoculation Methods	2-1 1-3
2	**Mon Feb 16**	**NO CLASS – PRESIDENT DAY**	
	Wed Feb 18	Observations of Aseptic Techniques	1-3
3	Mon Feb 23	Use and Care of a Microscope	3-1
	Wed Feb 25	Examination of Microscopic Eukaryotes: Fungi	3-3
4	Mon Mar 2	Examination of Microscopic Eukaryotes: Protozoa	3-3, 3-4
	Wed Mar 4	Helminths: Parasitic Worms	12-4
5	Mon Mar 9	**Quiz 1: Exercises 2-1, 1-3, 3-1, 3-3, 3-4 and 12-4** Smear Preparation Simple Staining	3-5
	Wed Mar 11	Gram staining	3-7
6	Mon Mar 16	Gram Staining	3-7
	Wed Mar 18	Acid-Fast Staining	3-8
7	Mon Mar 23	Endopore Staining	3-10
	Wed Mar 25	**Quiz 2: Exercises 3-5, 3-7, 3-8 and 3-10** Pure Culture Techniques: Streak Plate Method (Isolation)	1-4
8	Mon Mar 30	Pure Culture Techniques: Sub culturing	1-4
	Wed Apr 1	Pure Culture Techniques: Evaluation Effect of UV Radiation on Microbial Growth	1-4 2-13
	Apr 6 - 8	**NO CLASS – SPRING BREAK**	
9	Mon Apr 13	Observation of the effects of UV Radiation Chemical Germicides: Effects of Disinfectants and Antiseptics	2-13 2-14
	Wed Apr 15	Observations of Chemical Germicides Effects of Temperature on Microbial Growth	2-14 2-9
10	Mon Apr 20	Observation of Effects of Temperature	2-9
	Wed Apr 22	**Quiz 3: Exercises 1-4, 2-13, 2-14 and 2-9** **Unknown:** Stock Preparation, Gram Staining, Microscopic Morphology, Streak Plate Colony Isolation	Handout
11	Mon Apr 27	**Unknown:** Stock Preparation, Gram Staining and Streak Plate Colony Isolation	
	Wed Apr 29	**Unknown:** Macroscopic Characteristics and Working Slant Preparation	
12	Mon May 4	**Unknown:** Carbohydrate Fermentation Test (Phenol Red) - Catalase Test	
	Wed May 6	**Unknown:** Observations of Carbohydrate Fermentation Mixed Acid and Butanediol Fermentation Tests (MR-VP) and Citrate Test	5-3, 5-5
13	Mon May 11	**Unknown:** Observations of MR-VP and Citrate Test	5-4, 5-8
	Wed May 13	**Unknown:** Starch Hydrolysis and H_2S Production (Kligler's Iron Agar)	5-12 5-21
14	Mon May 18	**Unknown:** Results of Starch Hydrolysis and H_2S Production (Kligler's Iron Agar)	5-12, 5-21
	Wed May 20	Antimicrobial Susceptibility Test	7-3
15	**Mon May 25**	**NO CLASS – Memorial Day**	
	Wed May 27	**Quiz 4: Exercises 5-3, 5-5, 5-4, 5-8, 5-12, 5-21 and 7-3** Observation of Antimicrobial Susceptibility Clean up (Microscopes) and Locker Check-out **UNKNOWN REPORT DUE**	7-3

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