

MICRO 130 GENERAL MICROBIOLOGY

(CRN61059)

TR, 8:30 – 9:45 am, Hale 'Imiloa 123

INSTRUCTOR:	Hongwei Li Ph.D.
OFFICE HOURS:	Tuesday 12:00 – 1:00 pm, walk-in or by appointment
OFFICE:	Hale 'Imiloa 107
TELEPHONE:	(808) 236-9104
EMAIL:	hli@hawaii.edu
EFFECTIVE DATE:	Fall 2017

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

CATALOG DESCRIPTION

Fundamentals of microbiology: growth, development, and classification of bacteria, viruses, protozoa, fungi and algae; roles of microorganisms in the environment and human affairs; medical microbiology, immunology, and applied microbiology for food sanitation and public health.

REQUIREMENT COURSE SATISFIES:

AT WCC:

- AA Lib Arts (DB, DY)
- Certificate of Achievement in Agripharmatech

AT UHM:

- Bachelor of Science Degree Program in Plant and Environmental Biotechnology.
Accepted as an elective for the following specializations: Plant Biotechnology, General Biotechnology, and Environmental-Microbial Biotechnology.

STUDENT LEARNING OUTCOMES

1. Describe the main morphological characteristics, growth, reproduction and classification of algae, bacteria, fungi, protozoa, viruses and helminthes
2. Discuss etiologies, reservoirs of infection, modes of transmission, signs, symptoms, and treatments and/or methods of prevention of common infectious diseases of humans
3. Describe the basic principles of molecular genetics as they relate to cell division, mutation, genetic engineering, protein synthesis, bacterial virulence, and antibiotic resistance
4. Describe pathogenicity, immunity and allergies

COURSE TASKS, ASSESSMENTS AND GRADING

Course Tasks:

1. Class attendance is mandatory.
2. Read each appropriate chapter prior to class session
3. Participate course-based research projects and group discussions.
4. Complete quizzes/homework assignments and review study guides

Assessments:

1. There will be one essay assignment; late submission of the assignment will result in point deduction.
2. There are 5 quizzes/assignments will be given, and the time will be announced at least one day ahead.
3. Three exams (2 midterms and one final) will be administered during the semester. Each exam will cover the lectures and chapters assigned since the preceding exam was given. Even though the exams are not cumulative, an understanding of previously covered material is generally needed to answer questions on each exam. Exams will consist of multiple choices, fill in the blank, matching and short answer questions.

NOTE: Make-up quizzes/exams will only be given with a valid reason (i.e. medical or other emergency) on the FIRST day you return to class. In such a circumstance, you should make every reasonable attempt to contact the instructor as soon as possible before the exam. There is No early or make-up exam for the final.

4. Completion of a scientific report on a course-based research project: you are required to conduct research on a given topic and write a scientific report.

Grading:

The total possible points:

<i>Essay (1)</i>	20	points
<i>Quizzes (5)</i>	100	points
<i>Exams (3)</i>	300	points
<i>Scientific Report (1)</i>	30	points

Total	450	points
-------	-----	--------

Letter grades will be assigned as follows:

- A - - - 90% or above in total points.
- B - - - 80-89% of total points.
- C - - - 70-79% of total points.
- D - - - 60-69% of total points.
- F - - - Below 60% of total points

I (incomplete) grade is given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond his or her control. The student is expected to complete the course by the designated deadline in the succeeding semester. If this is not done, the I grade will revert to the contingency grade identified by the instructor

LEARNING RESOURCES

1. Required Textbook: Tortora, G.J., B.R. Funke and C.L. Case. *Microbiology – An Introduction*. Pearson Benjamin Cummings. 11th or 12th edition
2. Course materials: <https://windwardcc.instructure.com/login/canvas> or <https://laulima.hawaii.edu/>

DISABILITIES ACCOMMODATION STATEMENT

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.

Date	Lecture topic	Chapter
Week 1	Microbial world and you	1
	Chemical principles	2
Week 2	Chemical principles	2
	Microscope	3
Week 3	Functional anatomy of prokaryotic and eukaryotic cells	4
Week 4	Functional anatomy of prokaryotic and eukaryotic cells	4
	Microbial metabolism	5
Week 5	Microbial metabolism	5
	EXAM 1 (September 21)	1-5
Week 6	Microbial growth	6
	Control of microbial growth	7
Week 7	Microbial genetics	8
	Microbial genetics	8
Week 8	Biotechnology & DNA technology	9
	Biotechnology & DNA technology	9
Week 9	Classification of microorganisms	10
	Prokaryotes	11
Week 10	Eukaryotes: fungi, algae, and protozoa	12
	Viruses, viroid and prions	13
Week 11	Viruses, viroid and prions	13
	EXAM 2 (November 1)	6-13
Week 12	Video (Influenza 1918)	
	Research Topic Review	
Week 13	Principles of disease & epidemiology	14
	Microbial mechanisms of pathogenicity	15
Week 14	Innate immunity: non-specific defenses of the host	16
Week 15	Adaptive immunity: specific defenses of the host	17
	Practical application of Immunology	18
Week 16	Disorders of the immune system	19
	Antimicrobial drugs	20
December 14	FINAL EXAM (8:30 - 10:30 am)	14-20

(Please note that this schedule is subject to change)