UNIVERSITY of HAWAI'I®
WINDWARD
COMMUNITY COLLEGE

MICR 130 GENERAL MICROBIOLOGY

3 Credits (CRN 64012)

INSTRUCTOR: Hongwei Li, PhD
Class Meeting Time: Online asynchronous, 01/09/2023 – 05/12/2023
OFFICE HOURS:

- Students can set up individual Zoom meetings with instructor at any convenient time.
- Students can contact instructor via email anytime with a 24 business hour response.

EMAIL: hli@hawaii.edu
EFFECTIVE DATE: Spring 2023

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Ko'olau region of O'ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

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:

- DB for AS in Natural Science
- DB for AA in Liberal Arts
- Required course for Certificate of Achievement in Agripharmatech

STUDENT LEARNING OUTCOMES

As a result of taking this course, students can expect to attain the following outcomes:

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

COURSE TASKS

- Read and review assigned chapters in the textbooks and other lecture materials.
- Complete homework assignments, quizzes, and exams.
- Perform literature research for a topic presentation.

ASSESSMENT TASKS AND GRADING

Assessments

- Quizzes: weekly quizzes will be given on the Laulima class site every Thursday.
- Exams: there will be three exams (2 midterms and 1 final) on Laulima. Each exam will cover the lectures and chapters assigned since the preceding exam was given. Even though exams are not cumulative, understanding of previously covered material is generally needed to answer questions on each exam. Exams consist of multiple choices, fill in the blank, matching and short answer questions.
- Assignments: there will be 2 special assignments on current infectious diseases via Laulima Assignments.
- Presentation on a course-based research topic: conduct literature research on a selected topic, prepare and submit a video presentation to Laulima Dropbox.

Late submission policy

- Students are expected to complete and submit assignments/quizzes/exams before the assigned due date and time. Late submissions will be accepted with a penalty, which is a 10% grade point deduction for each day following the deadline. For examples, if your assignment (max. 20 points) is one day late, the highest grade you can get is 18; if you are ten days late, you will not get any credit for the assignment.

Extra-credit opportunities

- Extra-credit opportunities will depend on assessment results from quizzes and midterm exams. If there are any significant deficiencies across the class in understanding of certain concepts or topics, specific assignments will be given and extra credits will be offered.

Grading

The total possible points:		
Quizzes	*300*	*points*
Exams (3)	*300*	*points*
Assignments	*50*	*points*
Research topic presentation	*50*	*points*
Total	700	points

Grading is based on the percentage of total points earned. Final 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. It is the **student's responsibility** to contact the instructor to make up the incomplete work with a minimum level (or better) of achievement. Failure to satisfactorily make up incomplete work within the appropriate time period will result in a grade change for "I" to the contingency grade identified by the instructor.

LEARNING RESOURCES

- **Laulima class site**: https://laulima.hawaii.edu/
- **Required textbook**: Tortora, G.J., B.R. Funke, C.L. Case. *Microbiology – An Introduction*. Pearson, 13th edition.
    - Recommended: eText, $9.99/month https://www.pearson.com/store/en-us/pearsonplus/p/9780135789377.html
    - Any used hardcopy textbooks (11th, 12th or 13th edition) are also acceptable.
- Reference textbook: Open Educational Resources (OER) Textbook: Parker, N. *Microbiology*. https://open.umn.edu/opentextbooks/textbooks/microbiology

DISABILITIES ACCOMMODATIONS

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 Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, royinouy@hawaii.edu, or you may stop by Hale Kāko'o 106 for more information.

SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)
Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Jojo Miller, Confidential Advocate
Phone: (808) 348-0663
Email: advocate@hawaii.edu
Office: Hale Kāko'o 110

Desrae Kahale, Mental Health Counselor & Confidential Resource
Phone: (808) 235-7393
Email: dkahale3@hawaii.edu
Office: Hale Kāko'o 101

Karen Cho, Deputy Title IX Coordinator
Phone: (808) 235-7404
Email: kcho@hawaii.edu
Office: Hale ‘Alaka’i 120

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University’s Title IX resources and the University’s Policy, Interim EP 1.204, go to manoa.hawaii.edu/titleix/

ALTERNATE CONTACT INFORMATION

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121
Phone: 808-235-7422
Email: wccaa@hawaii.edu

CLASS SCHEDULE

Week	Lecture topic	Chapter
Week 1	Microbial world and you	1
	Chemical principles	2
Week 2	Chemical principles	2
Week 3	Observing microorganisms through a microscope	3
	Functional anatomy of prokaryotic and eukaryotic cells	4
Week 4	Functional anatomy of prokaryotic and eukaryotic cells	4
Week 5	Microbial metabolism	5
Week 6	***1st Midterm Exam*** *(02/14/2023, Chapter 1-5)*	
	Microbial growth	6
Week 7	The control of microbial growth	7
	Microbial genetics	8
Week 8	Microbial genetics	8
	Biotechnology & DNA technology	9
Week 9	Classification of microorganisms	10
	Prokaryotes	11
	Eukaryotes: fungi, algae, and protozoa	12
Week 10	*Spring Recess*	
Week 11	Viruses, viroid and prions	13
Week 12	***2nd Midterm Exam*** *(03/28/2023, Chapter 6-13)*	
	Principles of disease & epidemiology	14
Week 13	Microbial mechanisms of pathogenicity	15
	Innate immunity: non-specific defenses of the host	16

Week 14	Adaptive immunity: specific defenses of the host	17
Week 15	Practical applications of immunology	18
	Disorders associated with the immune system	19
Week 16	Antimicrobial drugs	20

Final Exam
(05/11/2023, Thursday, Chapter 14-20)

(Note: the class schedule is subject to change at the discretion of the instructor)