



UNIVERSITY of HAWAII®
WINDWARD
COMMUNITY COLLEGE

MICR 130 GENERAL MICROBIOLOGY

3 Credits (CRN 60444)

INSTRUCTOR: Hongwei Li, PhD
Class Meeting Time: Online asynchronous, 08/23/2021 – 12/17/2021
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: Fall 2021

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 AA in Liberal Arts
- Required course for Certificate of Achievement in Agripharmatech
- Elective for AS in Natural Sciences

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

ASSESSMENT TASKS AND GRADING

Assessments

- There are 15 quizzes (weekly) will be given on the Lualima class site, and the time and content will be shown on Lualima class site, and/or announced via emails.
- There will be three exams (2 midterms and 1 final). Each exam will cover the lectures and chapters assigned since the preceding exam was given. Even though the exams are not cumulative, 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.
- Presentation on a course-based research topic: conduct literature research on a selected topic, prepare and submit a video presentation via Lualima Dropbox.
- There will be 5 special assignments on different topics of COVID-19.

Late submission policy

- Students are expected to complete and submit assignments/quizzes/exams before 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. Because of current situations and difficulties from COVID-19 pandemic, a request for a deadline extension and/or a waiver of the penalty may be considered by the instructor on a case-by-case basis.

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.

Bonus points for improvement

- This policy is only applied to exams (midterms and final). If your grade in an exam exceeds the average grade of all prior exams, you will receive 5% of the exam full score as bonus points for your improvement effort. For example, you got 86 points (86 of 100) in final exam. If the average grade of your 2 midterms was 85%, an extra 5 points will be awarding you and the final grade of your final exam is 91.

Grading

The total possible points:

<i>Quizzes (15)</i>	<i>300</i>	<i>points</i>
<i>Exams (3)</i>	<i>300</i>	<i>points</i>
<i>COVID-19 special assignments</i>	<i>50</i>	<i>points</i>
<i>Research topic presentation</i>	<i>50</i>	<i>points</i>

Total	700	points
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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, D. Weber, and W.B. Bair. *Microbiology – An Introduction*. Pearson, 13th edition.
 - Recommended: eText, \$44.99
<https://www.pearson.com/store/p/microbiology-an-introduction/P100000797731>
 - Any used 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.

TITLE IX

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: [https://windward.hawaii.edu/Title IX/](https://windward.hawaii.edu/Title_IX/).

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, WCC has resources to support you. To speak with someone confidentially, contact the Mental Health & Wellness Office at 808-235- 7393 or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235-7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator, Karla K. Silva-Park, at 808-235-7468 or karlas@hawaii.edu.

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 3	Functional anatomy of prokaryotic and eukaryotic cells	4
Week 5	Microbial metabolism	5
Week 6	Midterm Exam 1 (09/28 Tuesday, 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	Eukaryotes: fungi, algae, and protozoa	12
	Viruses, viroid and prions	13
Week 11	Midterm Exam 2 (11/02 Tuesday, chapter 6-13)	
	Principles of disease & epidemiology	14
Week 12	Microbial mechanisms of pathogenicity	15
	Innate immunity: non-specific defenses of the host	16
Week 13	Adaptive immunity: specific defenses of the host	17
Week 14	Practical applications of immunology	18
	Disorders associated with the immune system	19
Week 15	Antimicrobial drugs	20
	Brief overview of microorganisms and human Disease	21-26
Week 16	Brief overview of environmental and applied microbiology	27-28
	Final Exam (12/16 Thursday, chapter 14-20)	

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