

## **MICRO 130 GENERAL MICROBIOLOGY**

3 Credits (CRN60022)

MW, 4:00 – 5:15 pm, Hale 'Imiloa 123

<b>INSTRUCTOR:</b>	Hongwei Li Ph.D.
<b>OFFICE HOURS:</b>	Tuesday 3:00 – 4:00 pm, walk-in or by appointment
<b>OFFICE:</b>	Hale 'Imiloa 107
<b>TELEPHONE:</b>	(808) 236-9104
<b>EMAIL:</b>	hli@hawaii.edu
<b>EFFECTIVE DATE:</b>	Spring 2019

### **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.

### **Activities Required at Scheduled Times Other Than Class Times**

Self-study and homework assignments.

### **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**

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. Read each appropriate chapter prior to class session

2. Complete quizzes/homework assignments and review study guides.
3. Reading assignments: assigned handouts prior to lectures, and literature research for preparation of research presentation.

### Assessments

1. There are 10 quizzes/assignments will be given, and the time and content will be announced in class or by email.
2. Three exams (2 midterms and a final) will be given 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.

*Make-up exam: will be permitted only by the instructor upon consideration of the evidence justifying the absence presented by the student.*

3. Presentation on a course-based research topic: conduct literature research on a given topic and present in class.

### Grading

The total possible points:

<i>Quizzes /Assignments (10)</i>	<i>200</i>	<i>points</i>
<i>Exams (3)</i>	<i>300</i>	<i>points</i>
<i>Research topic presentation (1)</i>	<i>50</i>	<i>points</i>

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Total	550	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 **your 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

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

### 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 Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann

*Windward Community College is an equal opportunity, affirmative action institution.*

Lemke can be reached at 235-7448, [lemke@hawaii.edu](mailto:lemke@hawaii.edu), or you may stop by Hale ʻĀkoakoa 213 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](mailto: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](mailto: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](mailto:wccaa@hawaii.edu)

## CLASS SCHEDULE

Date	Lecture topic	Chapter
01/07	Microbial world and you	1
01/09	Chemical principles	2
01/14	Chemical principles	2
01/16	Microscope	3
01/21	<i>Holiday</i>	
01/23	Functional anatomy of prokaryotic and eukaryotic cells	4
01/28	Functional anatomy of prokaryotic and eukaryotic cells	4
01/30	Functional anatomy of prokaryotic and eukaryotic cells	4
02/04	Microbial metabolism	5
02/06	Microbial metabolism	5
<b>02/11</b>	<b>EXAM 1</b>	<b>1-5</b>
02/13	Microbial growth	6
02/18	<i>Holiday</i>	
02/20	Control of microbial growth	7
02/25	Microbial genetics	8
02/27	Microbial genetics	8
03/04	Biotechnology & DNA technology	9
03/06	Classification of microorganisms	10
03/11	Prokaryotes	11
03/13	Eukaryotes: fungi, algae, and protozoa	12

03/18-20	<i>Break</i>	
03/25	Viruses, viroid and prions	13
03/27	Viruses, viroid and prions	13
<b>04/01</b>	<b>EXAM 2</b>	<b>6-13</b>
04/03	Principles of disease & epidemiology	14
04/08	Microbial mechanisms of pathogenicity	15
04/10	Innate immunity: non-specific defenses of the host	16
04/15	Adaptive immunity: specific defenses of the host	17
04/17	Disorders of the immune system	19
04/22	Vaccines and antimicrobial drugs	18/20
04/24	Vaccines and antimicrobial drugs	18/20
04/29	Topic presentation	
05/01	Topic presentation	
<b>05/06</b>	<b>FINAL EXAM (04:00 - 06:00 pm)</b>	<b>14-20</b>

(Please note that this schedule is subject to change)