



UNIVERSITY of HAWAII®  
**WINDWARD**  
COMMUNITY COLLEGE

## MICR 140L GENERAL MICROBIOLOGY LABORATORY

2 Credits (CRN 61135)

TR, 10:00 – 11:50 am, Hale Imiloa 106

**INSTRUCTOR:** Hongwei Li  
**OFFICE:** Hale Imiloa 107  
**OFFICE HOURS** In-person meeting by appointment only  
Zoom meeting, weekly on Thursday, 1:00 – 2:00pm  
<https://hawaii.zoom.us/j/92778859721>  
Meeting ID: 927 7885 9721 Passcode: MICR140L  
**TELEPHONE:** (808) 236-9104 **EMAIL:** hli@hawaii.edu  
**EFFECTIVE DATE:** Spring 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

Laboratory course illustrating fundamental techniques and concepts of microbiology, such as microscopic observations, aseptic transfer, microorganism classification and identification, environmental factors influencing microbial growth, biochemistry of microorganisms, ecological microbiology, and medical microbiology. This course is designed to complement MICRO 130. Primarily for students in nursing, dental hygiene, biotechnology, ethnopharmacognosy, and nutrition.

#### Requirement course satisfies:

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

### Activities Required at Scheduled Times Other than Class Times

- Read assigned lab materials prior to class sessions.
- Complete lab quizzes, assignments, and reports.
- Participate in group activities for research projects.

## STUDENT LEARNING OUTCOMES

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

1. Operate equipment used in microbiology laboratory
2. Prepare growth media
3. Perform aseptic transfer
4. Identify microorganisms using morphological and physiological tests
5. Follow biosafety procedures
6. Produce lab reports using the standard scientific format

## COURSE TASKS, ASSESSMENT AND GRADING

### Course Tasks and Assessments

- **Lab Participation**
  - Attendance of the scheduled face-to-face labs is mandatory. Students will be graded on attendance, practice of lab safety, and quality of lab assignments.
- **Assignments**
  - Two special assignments will be given at Week 5 and Week 10 respectively, and the topics and detail instruction will be announced in the scheduled weeks.
  - Students are required to submit a brief report for each lab, and the content includes lab results, questions about lab procedures, and analysis of the problems encountered.
- **Quizzes**
  - There will be a quiz for each lab.
- **Exams**
  - There are one midterm exam and one final exam, and the test dates are planned in the course weekly schedule.
  - The format of exams includes Multiple Choice, Fill-in-the-blank, Matching, Short Answers, and Hands-on Tests.
- **Scientific Lab Report**
  - A full scientific laboratory report is expected at the end of semester, which should contain following sections, *Title, Introduction, Materials and Methods, Results and Discussion*. The topic of the lab report will be announced after the midterm exam.
- **Group research projects**
  - Students (as a group) will conduct original research on a topic relevant to the contents of MICR140L
  - The following deliverables are expected:
    - Project proposal: a single page outline of the research project and methods to be used, including the question to be answered, approach used to answer it, a tentative plan to divide the work between the group member, and a list of 3 peer-reviewed articles as the references for the project.
    - Final group research presentation during the last week of the semester (May 4): any person in the group should be able to answer any question to show that all members of the group fully understand the project.

## Grading

- **Late Work**
  - Students are expected to complete and submit assignments/quizzes/exams before designated due dates. Late work 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.
  - Due to the difficulty situations caused 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**
  - Extra-credit opportunities will depend on assessment results from assignments, quizzes and midterm exams. If there are any significant deficiencies across the class in certain concepts or techniques, specific assignments will be given and extra credits will be offered.
- **Final Grade Calculation**

Lab Participation	50
Special assignments (2)	50
Brief lab reports (15)	150
Quizzes (15)	150
Exams (2)	200
Scientific lab report (1)	50
Group research project (1)	50
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Total	700

Students will receive a letter grade based on the following scale:

### Letter Grades and Percentage Ranges

- A = 90-100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- F = 0-59%

**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 student's 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

- All lab materials, including lab procedures & video demonstrations, reading handouts, assignments, quizzes and exams will be posted on Laulima class site.  
<https://laulima.hawaii.edu/>
- No textbook is required.

## 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](mailto:royinouy@hawaii.edu), or you may stop by Hale Kāko‘o 106 for more information.

## 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:

Kaahu Alo, Student Life Counselor & Designated Confidential\* Advocate for Students

Phone: (808) 235-7354

Email: [kaahualo@hawaii.edu](mailto:kaahualo@hawaii.edu)

Office: Hale ‘Ākoakoa 232

*\*confidentiality is limited*

Desrae Kahale, Mental Health Counselor & Confidential Resource

Phone: (808) 235-7393

Email: [dkahale3@hawaii.edu](mailto:dkahale3@hawaii.edu)

Office: Hale Kāko‘o 101

Karla K. Silva-Park, Title IX Coordinator

Phone: (808) 235-7468

Email: [karlas@hawaii.edu](mailto:karlas@hawaii.edu)

Office: Hale ‘Ākoakoa 220

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/](http://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: Alaka‘i 121
- Phone: (808) 235-7422

## LAB SCHEDULE

<b>Week</b>	<b>Lab Topic</b>
1	Course introduction and biological safety Ubiquity of microorganisms and cultural characteristics of bacteria
2	Use of compound microscope Dark-field and phase-contrast microscopy
3	Aseptic techniques/bacterial culture transfer Isolation of bacterial pure culture
4	Preparation of bacterial smears and simple staining Negative staining
5	Gram staining Differential staining: acid-fast, capsule, endospore staining
6	Media for bacterial culture, differential and selective media Serial dilution of bacterial culture and plate counts
7	Spectrophotometry and bacterial growth curve <b>Midterm Exam: February 23</b>
8	Biochemical activities of microorganisms (exoenzymes, carbohydrate fermentation, urea test, nitrate reduction test, catalase test)
9	Effects of temperature, UV radiation, oxygen and osmotic pressure on bacterial growth
10	Effect of disinfectants, antiseptics and antibiotics on bacterial growth Scientific methods
11	Bacteria of the skin, mouth and intestinal tract Group research projects
12	Bacterial transformation Group research projects
13	Identification of unknown bacteria Group research projects
14	Fungi and protists Identification of unknown bacteria Group research projects
15	Identification of unknown bacteria Group research projects <b>Scientific Lab Report Due Date: April 29</b>
16	Group research presentation <b>Final Exam: May 11</b>

*(Please note that this schedule is subject to change)*