



UNIVERSITY of HAWAII®
WINDWARD
COMMUNITY COLLEGE

BIOL 171L Introduction to Biology I Lab

1 Credits (CRN 63016)

INSTRUCTOR: Hongwei Li, PhD
CLASS MEETING TIME: Wednesday, 1:30 – 4:15 pm, Hale Imiloa 106
OFFICE: Hale Imiloa 107
OFFICE HOURS: Thursday, 9:00 – 10:00 am
Any other time by appointment (in-person or Zoom)
EMAIL: hli@hawaii.edu
EFFECTIVE DATE: Fall 2022

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 to accompany BIOL 171.

Prerequisite: Credit for or registration in BIOL 171.

Recommended Preparation: High school chemistry or college chemistry.

REQUIREMENTS COURSE SATISFIES

WCC: AS in in Natural Sciences, AA in Liberal Arts, and CA in Agripharmatech (DY)

UHM: BA or BS in any of the biological sciences (DY)

STUDENT LEARNING OUTCOMES

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

1. Use the scientific method of inquiry to investigate biological phenomena.
2. Apply the concepts learned in BIOL 171 to an experimental and hands-on observational setting.
3. Collect, reduce, and interpret biological data.
4. Prepare written objective reports describing and interpreting experimental and observational results.
5. Demonstrate the use of some of the standard tools of the biological scientist, such as microscopes, scales, spectrophotometers, computers, and other analytical tools.
6. Apply the standard analytical procedures of biology, such as chromatography, biochemical analyses, preparation of materials for microscopic examination, culture techniques, and statistical procedures (descriptive statistics and hypothesis testing).

COURSE TASKS AND GRADING

Lab Attire, Conduct and Hygiene

Because biology labs often involve working with hazardous materials and living organisms, students must dress appropriately. Students must wear lab coats and closed-toe shoes in the lab. Students may purchase a lab coat at the college bookstore. In addition, some lab activities will require students to wear gloves and safety glasses (provided by the college). Students failing to dress appropriately for lab will not be permitted into the laboratory and will be considered to be absent for the missed lab activity. Students engaged in conduct that threatens the safety of themselves and others in the lab will be refused access to the lab for the remainder of the semester and will receive an “F” for the course. Students are also expected to clean up their workstations following the lab activities. Failing to do so will lead to a 5-10 point penalty depending upon the seriousness of the infraction.

Laboratory Participation

Class attendance is mandatory. Students are required to actively participate in all lab activities, and expected to work, as an individual or in groups, safely and efficiently in the laboratory. Student’s lab participation will be graded via Lulima Weekly Engagement based on laboratory attendance, level of participation, lab work completed, Forum responses, and datasheets or assignments submitted. Because laboratories involve considerable set-up/take-down time and supervision, students will NOT be able to make up missed laboratory activities. A student missing a scheduled laboratory activity because of a documented illness or legitimate emergency may be given an alternative activity, at the instructor’s discretion, to make up lost lab summary points.

Pre-lab Quizzes

Students must complete pre-lab quizzes administered via Lulima one hour before the laboratory meetings. These quizzes will test the student's knowledge of and preparation for the laboratory exercise planned for that day. In general, these quizzes will be posted on the Lulima site the Sunday prior to the lab meeting. No make-up quizzes for any absences (even resulting from legitimate illness) will be administered.

Laboratory Notebook

The student will maintain a laboratory notebook to record all information gathered before and during laboratory activities, including all procedure notes, observations, results and discussions. This notebook must be brought to every laboratory period. The notebook will be collected and graded twice during the semester. Grading rubrics for lab notebooks are posted on Lulima.

Lab Report

Students are required to complete one full laboratory report on a given lab activity, which should contain following sections, *Title, Introduction, Procedure, Results, and Discussion/Conclusion*.

Exams

There will be two exams (1 midterm and 1 final, non-cumulative). Student learning will be assessed in understanding of the principles of lab procedures and hands-on practical. The student will identify and answer questions about biological structures, organisms, and skills covered in the prior lab sessions.

Grading

The total possible points:

| | | |
|---------------------------------|------------|---------------|
| <i>Laboratory Participation</i> | <i>150</i> | <i>points</i> |
| <i>Pre-lab Quizzes</i> | <i>150</i> | <i>points</i> |

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|----------------------------|-----|--------|
| <i>Laboratory Notebook</i> | 50 | points |
| <i>Lab Report</i> | 50 | points |
| <i>Exams (2)</i> | 200 | points |
| <hr/> | | |
| Total | 600 | 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/>
Lab manuals, reference readings, videos & animations, descriptions of laboratory assignments and activities will be made available at the Laulima class site.
- **Reference Lab Manuals: OER Commons** (<https://www.oercommons.org/>)
 - <https://www.oercommons.org/courses/principles-of-biology-i-lab-manual>
 - <https://www.oercommons.org/courses/non-majors-college-biology-lab-manual>
 - <https://www.oercommons.org/courses/principles-of-biology-i-and-ii-lab-manuals/view>
- **Reference Textbook: Biology 2e** (<https://openstax.org/details/books/biology-2e>)

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)

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 | Lab | Topic |
|------|-----|--|
| 1 | 1 | Introduction & Lab Safety |
| 2 | 2 | Measurements & Units |
| 3 | 3 | Biological Molecules |
| 4 | 4 | Microscopy and Cells |
| 5 | 5 | Osmosis & Diffusion |
| 6 | 6 | Enzymes |
| 7 | 7 | Cell Respiration and Fermentation |
| 8 | 8 | Photosynthesis |
| 9 | | Midterm Exam (10/19, 1:30 – 3:00 pm, Lab 1-8) |
| 10 | 9 | Scientific Methods and Review of a Scientific Paper |
| 11 | 10 | Mitosis, Meiosis, Chromosomes |
| 12 | 11 | Mendelian Inheritance |
| 13 | 12 | Polymerase Chain Reaction |
| 14 | 13 | DNA Gel Electrophoresis |
| 15 | 14 | Bioinformatics |
| 16 | 15 | Phylogenetics |
| | | Final Exam (12/14, 1:30 – 3:30 pm, Lab 9-15) |

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