

BIOL275L Cell and Molecular Biology Lab
1 Credits (CRN64385)
Wednesday 10:00 am – 2:00 pm, Hale 'Imiloa 106

INSTRUCTOR:	Hongwei Li Ph.D.
OFFICE HOURS:	Wednesday 2:10 – 3:10 pm, walk-in or by appointment
OFFICE:	Hale 'Imiloa 107
TELEPHONE:	(808) 236-9104
EMAIL:	hli@hawaii.edu
EFFECTIVE DATE:	Fall 2018

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 for cell and molecular biology. Co-Requisites: BIOL275; or consent of the instructor.

Activities Required at Scheduled Times Other Than Class Times

Self-study and homework assignments.

STUDENT LEARNING OUTCOMES

Upon completion of the course, the student will be able to:

- Operate equipment used in cell and molecular biology laboratory.
- Conduct experiments including DNA/RNA/protein extraction and electrophoresis, enzyme kinetics, ELISA, RFLP, PCR, gene expression.
- Produce lab reports using the standard scientific format.

COURSE TASKS, ASSESSMENTS AND GRADING

Course Tasks:

- Lab attendance is mandatory.
- Students are expected to read the assigned lab manuals before coming to class.

Assessments

- **Exams**
There are two exams (midterm and final). Make-up midterm exam will be permitted only when there is a legitimate excuse (such as illness or emergency; doctor's note is required). No early or make-up exam for the Final.

- **Quizzes /Assignments**

There will be 5 quizzes/assignments; late submission of assignments may result in point deduction.

- **Lab Notebook**

Lab notebook is a complete and accurate record of experimental materials, procedures, and results. It is a permanent record of what you did and what you observed in the laboratory.

- The first page should contain the Table of Contents, and all pages should be numbered.
- The date of each lab should be written on the upper left hand side of each page, in continuous chronological order.
- No pages are to be left blank.
- All procedures must be recorded in detail in the notebook.
- All data (including tables, picture, or numbers) must be recorded clearly and titled.
- Any observations of interest should be noted, even the mistakes and difficulties when performing the experiment.
- At the end of each experiment you may discuss the data, analyze the potential sources for errors or failures, or make a comment on this experiment
- Entries in the notebook should be done in lab or immediately after the lab.

- **Lab Reports**

A laboratory report should contain following sections:

- **Title** The title of the experiment
- **Introduction**
 - Briefly describe the background information about the experiment.
 - Clearly state the objectives of the experiment.
- **Materials and Methods**
 - Specific information on materials used other than regular reagents.
 - The use of appropriate methods should be clearly described.
- **Results and Discussions**
 - Describe the data. Use tables, charts, graphs or other visual representations when they help to explain or organize the data.
 - The results should also be referenced appropriately (Fig. 1, ... or Table 1, ...) so that you can discuss the results in the discussion section.
 - You need to state what the data means. The narration should be very clear and relevant to the results.
 - Discuss the results in reference to your experiment, such as comments on experimental design and possible sources of errors

Grading The total possible points:

<i>Quizzes /Assignments (5)</i>	<i>100</i>	<i>points</i>
<i>Exams (2)</i>	<i>200</i>	<i>points</i>
<i>Lab Reports (2)</i>	<i>100</i>	<i>points</i>
<i>Lab notebook</i>	<i>100</i>	<i>points</i>
<i>Lab Attendance</i>	<i>50</i>	<i>Points</i>
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Total	550	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 **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

Lab 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 Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Ākoakoa 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/.

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, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235- 7468 or karlas@hawaii.edu 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 at 808-235-7393 or wctix@hawaii.edu.

ACADEMIC INTEGRITY

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

Students can upload papers to <http://www.TurnItIn.com> to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

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

Date	Lecture topic
08/22	Lab safety, basic lab techniques, and solution preparation
08/29	PCR
09/05	Agarose gel electrophoresis and recovery of DNA from gel
09/12	Bacterial culture and plasmid DNA isolation
09/19	Restriction enzyme digestion of a plasmid vector
09/26	Molecular cloning: ligation and transformation
10/03	Molecular cloning: colony screening
10/10	EXAM 1
10/17	Cell culture (human cell lines): cell passaging, counting, staining (DAPI) and fluorescent microscope
10/24	DNA and RNA extraction from human cells
10/31	RT-PCR
11/07	Analysis of gene expression by real-time PCR
11/14	DNA sequencing and analysis
11/21	Cell transfection
11/28	SDS-Polyacrylamide Gel Electrophoresis and detection of protein expression
12/05	Enzyme kinetics
12/12	FINAL EXAM (11:30 am - 1:30 pm)

(Please note that this schedule is subject to change)