

BIOL275 Cell and Molecular Biology

3 Credits (CRN64384)

MW, 8:30 – 9:45 am, Hale 'Imiloa 106

INSTRUCTOR:	Hongwei Li Ph.D.
OFFICE HOURS:	Monday 10:00 – 11:00 am, 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

Integrated cell and molecular biology for life science majors. Modern advances in recombinant DNA technology (3 hours lecture).

Pre-Requisite(s): "C" or better in BIOL171/171L and CHEM 272/272L or consent of instructor.
Co-Requisite(s): BIOL275L or consent of 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:

- Describe the principles of cytology including cell organization, structures and functions.
- Describe cell biochemistry including macromolecules of the cells, enzymes, membrane transport, cell signaling, and energy flow in cells during respiration and photosynthesis.
- Describe the principles of genetics including DNA replication, protein synthesis, mitosis, meiosis, genetic recombination and gene expression. Discuss traditional and *in vitro* plant propagation.

COURSE TASKS, ASSESSMENTS AND GRADING

Course Tasks

- Class attendance is mandatory.
- Read each appropriate chapter prior to class session.
- Participate course-based research projects and discussions.

- Complete quizzes/homework assignments and review study guides

Assessments

- **Exams**

Midterm Exams: There are two midterm exams, and each includes contents from previous 7 - 9 chapters.

Make-up exam: make-up exam will be permitted only when there is a legitimate excuse (such as illness or emergency; doctor's note is required).

Final Exams: 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.

- **Presentation**

Give a presentation on current topics in cell and molecular biology: **CRISPR**

Grading

The total possible points:

<i>Quizzes /Assignments (5)</i>	<i>100</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	450	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

1. Textbook

Becker's World of the Cell, by Jeff Hardin, Gregory Bertoni and Lewis J. Kleinsmith / Benjamin Cummings. Eighth Edition or Ninth 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 Lemke can be reached at 235-7448, 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/.

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
08/20	A Preview of the Cell
08/22	The Chemistry of the Cell
08/27	The Macromolecules of the Cell
08/29	Cells and Organelles
09/03	<i>Holiday</i>
09/05	Bioenergetics: the Flow of Energy in the Cell
09/10	Enzymes: the Catalysts of Life
09/12	Membranes
09/17	Transport Across Membranes
09/19	EXAM 1
09/24	Chemotrophic Energy Metabolism
09/26	Phototrophic Energy Metabolism: Photosynthesis
10/01	The Endomembrane System
10/03	Cytoskeletal Systems
10/08	Cellular Movement
10/10	Cell Adhesions, Cell Junctions and Extracellular Structures
10/15	DNA, Chromosomes, and the Nucleus
10/17	DNA Replication, Repair and Recombination
10/22	Gene Expression
10/24	Gene Expression
10/29	Regulation of Gene Expression
10/31	EXAM 2
11/05	Molecular Biology Techniques for Cell Biology
11/07	Signal Transduction Mechanisms
11/12	<i>Holiday</i>
11/14	Signal Transduction Mechanisms
11/19	Cell Cycle and Mitosis
11/21	Sexual Reproduction, Meiosis & Genetic Recombination
11/26	Cancer Cells
11/28	Cancer Cells
12/03	Current Topic Presentation
12/05	Current Topic Presentation
12/12	FINAL EXAM (08:30 - 10:30 am)

(Please note that this schedule is subject to change)