



UNIVERSITY of HAWAII®
WINDWARD
COMMUNITY COLLEGE

BIOL275 Cell and Molecular Biology

3 Credits (CRN 61325)

INSTRUCTOR: Hongwei Li, PhD
Class Meeting Time: Online unscheduled (asynchronous), 01/10/2022 – 05/13/2022
OFFICE HOURS: Students can set up individual Zoom meetings with instructor at any convenient time.
Students can contact instructor via email anytime with a 24 business hour response.
EMAIL: hli@hawaii.edu
EFFECTIVE DATE: Spring 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

Integrated cell and molecular biology for life science majors. Modern advances in recombinant DNA technology.

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.

Requirement course satisfies:

- Associate in Science in Natural Sciences (DB)
- Associate in Arts in Liberal Arts (DB)
- Capstone course for Certificate of Achievement in Agripharmatech

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.

COURSE TASKS

- Read assigned chapters in the textbook and other lecture materials.

- Complete homework assignments, quizzes, and exams.
- Participate in topic discussions and course-based research projects.

ASSESSMENT TASKS AND GRADING

Assessments

- There are 15 quizzes (weekly) will be given on the Lualima class site, and the time & content will be announced on Lualima class site.
- There will be three exams (2 midterms and 1 final) on the Lualima class site. Each exam will cover the lectures and chapters assigned since the preceding exam was given. Even though the exams are not cumulative, 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.
- There will be 5 special assignments or discussions on topics in cell and molecular biology.
- Topic presentation (due by April 29, 2022): conduct literature research on a selected topic, prepare and submit a video presentation via Lualima Dropbox.

Late submission policy

- Students are expected to complete and submit assignments/quizzes/exams before assigned due date and time. Late submissions may be accepted in 7 days after the deadlines with a penalty of 10 - 50% grade point deduction.
- Because of current situations and difficulties from 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 opportunities

- Extra-credit opportunities will depend on assessment results from quizzes and midterm exams. If there are any significant deficiencies across the class in understanding of certain concepts or topics, specific assignments will be given and extra credits will be offered.

Grading

The total possible points:

<i>Quizzes (15)</i>	<i>300</i>	<i>points</i>
<i>Exams (3)</i>	<i>300</i>	<i>points</i>
<i>Special assignments/discussions</i>	<i>50</i>	<i>points</i>
<i>Topic presentation</i>	<i>50</i>	<i>points</i>
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Total	700	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/>
- **Required Textbook**
Becker's World of the Cell, by Jeff Hardin and James Lodolce. Pearson, 10th Edition.
eText Instant Access: <https://www.pearson.com/store/p/becker-s-world-of-the-cell/P100003053974/9780137441778>

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.

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, 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. To make a formal report, contact the Title IX Coordinator, Karla K. Silva-Park, at 808-235-7468 or 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

CLASS SCHEDULE

Week	Lecture topic	Chapter
1	A Preview of the Cell	1
	The Chemistry of the Cell	2
2	The Macromolecules of the Cell	3
	Cells and Organelles	4
3	Bioenergetics	5
	Enzymes	6
4	Membranes	7
	Transport Across Membranes	8
5	Chemotrophic Energy Metabolism	9-10
6	Phototrophic Energy Metabolism	11
	Midterm Exam 1 (02/17/2022)	
7	The Endomembrane System	12
	Cytoskeletal Systems	13
8	Cellular Movement	14
	Beyond the Cell	15
9	The structural Basis of Cellular Information	16
	DNA Replication, Repair and Recombination	17
10	<i>Spring Recess</i>	
11	Gene Expression	18-19
12	Regulation of Gene Expression	20
13	Midterm Exam 2 (04/04/2022)	
	Molecular Biology Techniques for Cell Biology	21
14	Signal Transduction Mechanisms	22-23
15	Cell Cycle and Mitosis	24
	Sexual Reproduction, Meiosis & Genetic Recombination	25
16	Cancer Cells	26
17	Topic Presentation and Review	
18	FINAL EXAM (05/11/2022)	

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