Course Syllabus

Chaminade University Honolulu
3140 Waialae Avenue - Honolulu, HI 96816
www.chaminade.edu

Course Number:	BI216
Course Title:	Cellular and Organismal Biology II
Department Name:	Natural Sciences and Mathematics
Term:	Spring 2024
Course Credits:	3
Class Meeting Days:	Tuesday, Thursday
Class Meeting Hours:	11:30am – 12:50pm
Class Location:	Clarence T.C. Ching Hall, 254

Instructor Name:	Michael Weichhaus
Email:	michael.weichhaus@chaminade.edu
Phone:	808.440.4286
Office Location:	Wesselkamper Science Center, 107
Office Hours:	general availability: T/Th: 3:00 PM - 5:00 PM W: 10:30 AM - 12:30 PM Reserve a 30-min appointment using this link: https://calendar.app.google/SDpW5wjFZbnXRXym6

University Course Catalog Description

Introduction to the cell and molecular biology of prokaryotic and eukaryotic organisms, with particular reference to the relationships between structure and functions. Cell cycle and mitosis. Organization of cells, roles of cell signaling and extracellular environment in establishing structures in animals and plants. Prerequisite for Biology Majors: BI215/215L, BI 210L must be taken either prior or concurrently with BI 216. Cross-listed with BC 216.

Course Overview

This freshman biology course offers an in-depth exploration of eukaryotic cells, serving as a foundational step for students pursuing advanced studies in biology or related fields. Emphasizing both plant and animal cells, the course delves into the intricate world of organelles and their roles, covering topics such as cellular energy conversions, cellular movements, transport mechanisms, and the structure and function of DNA. Students will engage with concepts of bioenergetics and the cell cycle, gaining a comprehensive understanding of the cell as the fundamental unit of life. The course differentiates between prokaryotic and eukaryotic cells, ensuring a broad understanding of cellular biology. Additionally, students will develop critical thinking skills and the ability to interpret scientific literature, essential tools for their academic and professional growth in the field of biology.

Marianist Values

This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition in marked by five principles and you should take every opportunity possible to reflect upon the role of these characteristics in your education and development:

1. Education for formation in faith
2. Provide an integral, quality education
3. Educate in family spirit
4. Educate for service, justice and peace
5. Educate for adaptation and change

Native Hawaiian Values

Education is an integral value in both Marianist and Native Hawaiian culture. Both recognize the transformative effect of a well-rounded, value-centered education on society, particularly in seeking justice for the marginalized, the forgotten, and the oppressed, always with an eye toward God (Ke Akua). This is reflected in the ‘Olelo No’eau (Hawaiian proverbs) and Marianist core beliefs:

1. Educate for Formation in Faith (Mana) E ola au i ke akua (‘Ōlelo No‘eau 364) May I live by God
2. Provide an Integral, Quality Education (Na’auao) Lawe i ka ma‘alea a kū‘ono‘ono (‘Ōlelo No‘eau 1957) Acquire skill and make it deep
3. Educate in Family Spirit (‘Ohana) ‘Ike aku, ‘ike mai, kōkua aku kōkua mai; pela iho la ka nohana ‘ohana (‘Ōlelo No‘eau 1200) Recognize others, be recognized, help others, be helped; such is a family relationship

4. Educate for Service, Justice and Peace (Aloha) Ka lama kū o ka noʻeau (ʻŌlelo Noʻeau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) ʻAʻohe pau ka ʻike i ka hālau hoʻokahi (ʻŌlelo Noʻeau 203) All knowledge is not taught in the same school

Learning Outcomes

Program Learning Outcomes for the Biology Program.

Upon completion the program in Biology, a graduating student will demonstrate the following competencies:

1. An understanding of the scientific method and the ability to design and test a hypothesis
2. The ability to visualize, statistically evaluate, validate and interpret scientific data, and to communicate science effectively both orally and in writing
3. The ability to acquire and comprehend information from published scientific literature and to employ computational resources in the resolution of biological problems
4. An understanding of the chemical and physical principles that unite all life forms, and of biological organization at the molecular, cellular, tissue, organ, organism and system levels
5. The ability to define the components and processes of genetic and epigenetic information transmission, and their determinant effects on the adaptive and evolutionary processes that they drive
6. An understanding of the entry requirements, career pathways and progression for the major post-graduate fields of research, education and the health professions

Course Learning Outcomes (CLO)

Upon completion of this course in Cell Biology the student will achieve the following

1. Identify the cell as the basic unit of life and describe the structure and function of prokaryotic and eukaryotic cellular components and organelles.
2. Explain transmembrane and cellular transport mechanisms.
3. Compare and contrast bioenergetic pathways in energy conversion in plant and animal cells.
4. List and describe each phase of the cell cycle and how it is regulated.
5. Identify the main biological macromolecules and describe their function in cellular processes.

Alignment of Learning Outcomes

	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5
Marianist Values	2	2	2, 5	2, 4, 5	2

Program Learning Outcomes	4	4	1, 2, 3, 6	6	4

Alignment of Natural Sciences Courses with Marianist and Hawaiian values of the University.

The Natural Sciences Division provides an *integral, quality education:* sophisticated integrative course content taught by experienced, dedicated, and well-educated instructors.

- We *educate in family spirit* – every classroom is an *Ohana* and you can expect to be respected yet challenged in an environment that is supportive, inclusively by instructors who take the time to personally get to know and care for you.
- We *educate for service, justice and peace*, since many of the most pressing global issues (climate change, health inequity, poverty, justice) are those which science and technology investigate, establish ethical parameters for, and offer solutions to.
- We *educate for adaptation and change*. In science and technology, the only constant is change. Data, techniques, technologies, questions, interpretations and ethical landscapes are constantly evolving, and we teach students to thrive on this dynamic uncertainty.

The study of science and technology can be formative, exploring human creativity and potential in the development of technologies and scientific solutions, the opportunity to engage in the stewardship of the natural world, and the opportunity to promote social justice. We provide opportunities to engage with the problems that face Hawai‘i and the Pacific region through the Natural Sciences curriculum, in particular, those centered around severe challenges in health, poverty, environmental resilience, and erosion of traditional culture. The Marianist Educational Values relate to Native Hawaiian ideas of *mana, na'auao, ohana*, *aloha* and *aina*. We intend for our Natural Sciences programs to be culturally-sustaining, rooted in our Hawaiian place, and centered on core values of *Maiau,* be neat, prepared, careful in all we do; *Makawalu*, demonstrate foresight and planning; *`Ai,* sustain mind and body; *Pa`a Na`au*, learn deeply.

Course Prerequisites

Concurrent/Previous enrollment in BI100 recommended. Concurrent/Previous enrollment in BI210L and BI216L required.

Required Learning Materials

Mastering Biology with Pearson eText for Becker's World of the Cell
ISBN-13: 9780135891322
Use these instructions to gain access to the material from within canvas

Technical Assistance for Canvas Users:

- Search for help on specific topics at help.instructure.com

- Chat live with Canvas Support 24/7/365
- Contact the Chaminade IT Helpdesk for technical issues: helpdesk@chaminade.edu, or call (808) 735-4855

Tutoring and Writing Services

Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua `Ike: Center for Student Learning in a variety of subjects (including, but are not limited to: biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check Kōkua `Ike's website (https://chaminade.edu/advising/kokua-ike/) for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via Smarthinking. Smarthinking can be accessed 24/7 from your Canvas account. Simply click Account – Notifications – Smarthinking. For more information, please contact Kōkua `Ike at tutoring@chaminade.edu or 808-739-8305.

Assessment

Summaries	10 percent
1st Lecture Exam	15 percent
2nd Lecture Exam	15 percent
Mastering Assignments	15 percent
Presentation Discussion	5 percent
Presentation	20 percent
Final exam	20 percent
	100 percent

Grading Scale

A: Outstanding Scholarship and an Unusual Degree of Intellectual Initiative
Reflects a mastery of the course material and an exceptional ability to synthesize and apply knowledge creatively. Demonstrates critical thinking, originality, and precision in argument and interpretation. Work at this level goes beyond mere accuracy and skillfulness, exhibiting intellectual curiosity and insight.

B: Superior Work Done in a Consistent and Intellectual Manner
Represents strong understanding and application of course concepts, theories, and principles. Work is consistently thorough and well-organized, demonstrating analytical abilities and clear communication. Although not as inventive or insightful as an 'A' grade, 'B' level work shows commitment, engagement, and clear mastery of complex ideas.

C: Average Grade Indicating a Competent Grasp of Subject Matter
Denotes a satisfactory comprehension of the material with the ability to apply key concepts but may lack depth in understanding or application. Work at this level meets the basic course requirements and demonstrates a reasonable effort, but may lack creativity, precision, or engagement with more complex ideas.

D: Inferior Work of the Lowest Passing Grade, Not Satisfactory for Fulfillment of Prerequisite Course Work
Reflects limited understanding of the course material and minimal engagement with the key concepts. Work is often incomplete, superficial, or lacks cohesion. While it may meet the minimum criteria for passing, it falls short of the standards required for progression in sequential or related courses.

F: Failed to Grasp the Minimum Subject Matter; No Credit Given
Signifies a lack of basic comprehension of the course content and an inability to apply or articulate fundamental concepts. Work at this level is characterized by significant inaccuracies, misconceptions, or omissions, and does not meet the minimum requirements for passing the course. Students receiving an 'F' must re-take the course or an equivalent to obtain credit.

Course Policies

Late Work Policy

Quizzes: Mastering Biology Quizzes have a one-week grace period to complete for full credit.

Exams: If you miss an exam due to illness, please provide a note from your doctor. If you are away for university-related activities, let me know in advance. Unfortunately, there are no make-ups for exams in other circumstances.

Lecture Presentations: Please note that missed lecture presentations cannot be made up. Since you are able to pick the time and date for your presentation, please do so with the knowledge that this cannot be changed at a later date.

Essays:

- If you submit an essay up to 24 hours late, your grade will be lowered by half a letter grade (e.g., from a B to a B-).
- If your essay is late by more than 24 hours but less than 7 days, it will be lowered by a full letter grade (e.g., from a B to a C).
- Essays more than 7 days late will not be accepted.

Important: Life can be unpredictable. If you're facing unexpected challenges that might prevent you from meeting deadlines, please contact me as soon as possible. I'm here to support you, and we can discuss possible accommodations or solutions together.

Writing Policies

Follow the specific guidelines in each of the discussion and writing assignments. In general follow the AMA writing style, including double spacing, 1-inch margins, and 12-pt Times New Roman font

Grades of "Incomplete"

Students and instructors may negotiate an incomplete grade when there are specific justifying circumstances. An Incomplete Contract (available from the Divisional Secretary and the Portal)

must be completed. When submitting a grade, the “I” will be accompanied by the alternative grade that will automatically be assigned after 90 days. These include IB, IC, ID, and IF. If only an “I” is submitted the default grade is F. The completion of the work, evaluation, and reporting of the final grade is due within 90 days after the end of the semester or term. This limit is unlikely to be extended.

Instructor and Student Communication
Questions for this course can be emailed to the instructor. I aim to respond to emails promptly however please allow a response time of up to 2 days. The instructor is available during office hours. Please see above on how to reserve an office hour appointment. Online, in-person and phone conferences can be arranged.

Cell phones, tablets, and laptops
Out of consideration for your classmates, please set your cell phone to silent mode during class. Students are encouraged to bring laptops or tablets to class as the instructor will assign online activities and readings that will require the use of a laptop or tablet. Laptops and tablets should not be misused, such as checking distracting websites. Use your best judgment and respect your classmates and instructor.

ADA Policy
Pursuant to federal and state laws, including the Americans with Disabilities Act of 1990 as amended by the ADA
Amendments Act of 2008 and Section 504 of the Rehabilitation Act of 1973, all qualified students with disabilities are protected from discrimination on the basis of disability and are eligible for reasonable accommodations or modifications in the academic environment to enable them to equal access to academic programs, services, or activities. If a student would like to determine if they meet the criteria for accommodations, they should contact the Counseling Center in the Student Support Services Building, Room 101, by phone at (808) 735-4845 or email: counselingcenter@chamiande.edu for further information. Web: studentaffairs.chaminade.edu/counseling-center/counseling-services

Title IX Compliance

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting Campus Ministry, the Dean of Students Office, the Counseling Center, or the Office for Compliance and Personnel Services.

The following attendance policy is from the Academic Catalog.

Students are expected to attend regularly all courses for which they are registered. Students should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification

may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension, or by leaving a message with the instructor's division office. It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially withdrawing may receive a failing grade.

Unexcused absences equivalent to more than a week of classes may lead to a grade reduction for the course. Any unexcused absence of two consecutive weeks or more may result in being withdrawn from the course by the instructor, although the instructor is not required to withdraw students in that scenario. Repeated absences put students at risk of failing grades.

Students with disabilities who have obtained accommodations from the Chaminade University of Honolulu Tutor Coordinator may be considered for an exception when the accommodation does not materially alter the attainment of the learning outcomes.

Federal regulations require continued attendance for continuing payment of financial aid. When illness or personal reasons necessitate continued absence, the student should communicate first with the instructor to review the options. Anyone who stops attending a course without official withdrawal may receive a failing grade or be withdrawn by the instructor at the instructor's discretion.

Academic Conduct Policy
From the Undergraduate Academic Catalog:

Academic honesty is an essential aspect of all learning, scholarship, and research. It is one of the values regarded most highly by academic communities throughout the world. Violations of the principle of academic honesty are extremely serious and will not be tolerated.

Students are responsible for promoting academic honesty at Chaminade by not participating in any act of dishonesty and by reporting any incidence of academic dishonesty to an instructor or to a University official. Academic dishonesty may include theft of records or examinations, alteration of grades, and plagiarism, in addition to more obvious dishonesty.

Questions of academic dishonesty in a particular class are first reviewed by the instructor, who must make a report with recommendations to the Dean of the Academic Division. Punishment for academic dishonesty will be determined by the instructor and the Dean of Academic Division and may include an "F" grade for the work in question, an "F" grade for the course, suspension, or dismissal from the University.

Violations of Academic Honesty: Violations of the principle include, but are not limited to:

- Cheating: Intentionally using or attempting to use unauthorized materials, information, notes, study aids, or other devices in any academic exercise.
- Fabrication and Falsification: Intentional and unauthorized alteration or invention of any information or citation in an academic exercise. Falsification is a matter of inventing or counterfeiting information for use in any academic exercise.
- Multiple Submissions: The submission of substantial portions of the same academic work for credit (including oral reports) more than once without authorization.

- Abuse of Academic Materials: Intentionally or knowingly destroying, stealing, or making inaccessible library or other academic resource materials.
- Complicity in Academic Dishonesty: Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.
- Plagiarism: Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgment of the source) Examples include, but are not limited to:
- Copying or borrowing liberally from someone else's work without his/her knowledge or permission; or with his/her knowledge or permission and turning it in as your own work.
- Copying off someone else's exam or paper.
- Allowing someone to turn in your work as his or her own. DO NOT provide your work to someone else for reference.
- Not providing adequate references for cited work.
- Copying and pasting large quotes or passages without properly citing them.

Credit Hour Policy

The unit of semester credit is defined as university-level credit that is awarded for the completion of coursework. One credit hour reflects the amount of work represented in the intended learning outcomes and verified by evidence of student achievement for those learning outcomes. Each credit hour earned at Chaminade University should result in a minimum of 45 hours of engagement, regardless of varying credits, duration, modality, or degree level. This equates to one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester. Terms that have alternative lengths, such as 10 week terms, should have an equivalent amount of faculty instruction and out-of-class student work to meet each credit hour. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit. The number of engagement hours may be higher, as needed to meet specific learning outcomes.

Specific Credit Situations

The minimum 45 hours of engagement per credit hour can be satisfied in fully online, internship, or other specialized courses through several means, including (a) regular online instruction or interaction with the faculty member and fellow students and (b) academic engagement through extensive reading, research, online discussion, online quizzes or exams; instruction, collaborative group work, internships, laboratory work, practica, studio work, and preparation of papers, presentations, or other forms of assessment. This policy is in accordance with federal regulations and regional accrediting agencies.

How This Course (3 credits) Meets the Credit Hour Policy

- Seat time
    - 35h (70min TTh for 15 weeks)
- Time spent on key assessments, including study time:
    - Mid-term exams: 20h (2x10h)
    - Final exam: 15h
    - Essays: 20h (4x5h)
    - Mastering Biology Quizzes: 15h (15x1h)
    - Presentation: 20h
- Additional time each week (e.g., reading, studying, homework)
    - Reading: 12.5h (50min per week)

- Discussions: 12.5h (50min per week)
- Total: 150h

Schedule

Week	Lecture	Chapter
1	Chemistry of the cell	Chapter 2
2	The macromolecules of the cell	Chapter 3
3	Bioenergetics	Chapter 5
4	Enzymes	Chapter 6
5	Membranes	Chapter 7
6	Transport across membranes	Chapter 8
7	Glycolysis and Fermentation	Chapter 9
8		
9	Cellular Respiration	Chapter 10
10	Photosynthesis	Chapter 11
11	Endomembrane system	Chapter 12
12	Cytoskeletal Systems	Chapter 13
13	Cellular Movement	Chapter 14
	Cell Adhesions/Junctions and ECM	Chapter 15
14	Structural Basis of Information: DNA	Chapter 16
15	Cell Cycle	Chapter 24

Every effort has been made to ensure that the material in this syllabus is accurate and complete. However, occasionally changes must be made to the printed schedule. Thus, the instructor reserves the right to make any changes in the contents of this syllabus that he deems necessary or desirable. These changes, if any, will be announced as soon as the need for them becomes apparent.