Course Syllabus

Course Number: BI 216 & BC 216
Course Title: Cellular and Organismal Biology II
Department Name: Natural Sciences and Mathematics
College/School/Division Name: Chaminade University of Honolulu
Term: Spring 2021
Course Credits: 3
Class Meeting Days: TTh
Class Meeting Hours: 11:30am-12:50pm
Class Location: Henry Hall 207

Instructor Name: Dr. Mark Speck
Email: mark.spck@chaminade.edu
Phone: 808-739-7469
Office Location: Tredtin Hall 3 Data Science Center
Office Hours: TBD

1. University Course Catalog Description

Introduction to the cell biology of prokaryotic and eukaryotic organisms, with particular reference to the relationships between structure and functions, the cell cycle and mitosis, organization of cells, and the roles of cell signaling and extracellular environment in establishing structures in animals and plants.

2. Course Overview

This course has been designed to:

1. Prepare the students for further education in advanced biology courses, or related fields.
2. Introduce the student to the cellular biology of prokaryotes and eukaryotes.
3. To help the student on their road to becoming a competent and educated professional.
4. To examine and analyze specific content areas, such as molecular or cellular biology, evolution, genetics, physiology, and related areas of biochemistry and biophysics.

3. Program Learning Outcomes

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

1. Apply the scientific method in the design and testing of hypotheses
2. Transform and display, statistically evaluate, validate, and interpret scientific data and communicate the results of such analyses effectively both orally and in writing
3. Acquire, summarize, and synthesize information from published scientific literature, databases and bioinformatics software to extract and interpret biological data
4. Recognize the chemical and physical principles that underlie all life forms, and the biological organization at the molecular, cellular, tissue, organ, organism, and system levels that emerge from these principles
5. 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. Evaluate the etiology of major human disease burden in terms of, pathophysiological mechanisms, epidemiology within populations and possible therapeutic approaches
7. Integrate an awareness of bioethical issues to positively influence the application of science to service, justice and peace in the solution of societal problems

4. Course Learning Outcomes and Linkage to Program Learning Outcomes

Students who successfully complete this course will be able to:

Course Learning Outcomes	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7
1. Explain why the cell is the basic unit of life as well as identify and describe the structure and function of prokaryotic and eukaryotic cellular components and organelles.				X			
2. Identify and explain transmembrane and cellular transport mechanisms				X			
3. Compare and contrast plant and animal cell structures as well as how each cell type produces and harvests chemical energy.				X			
4. List and describe each phase of the cell cycle and how it is regulated.				X	X		

5. Identify the biological macromolecules of the cell, describe their structures and function and what roles each play in cellular processes such as metabolism, bioenergetics, respiration, photosynthesis, etc				X	X		

5. Course Prerequisites

Concurrent registration BI 216L required. Cross-listed with BC 216

6. Required Learning Materials

1. Urry, Cain, Wasserman, Minorsky and Reece. Campbell Biology, 11 edition. Pearson Education, Inc., 2017
2. Jeff Hardin, Gregory Bertoni, and Lewis Kelinsmith. Becker's World of the Cell, 9th edition. Pearson Education, Inc., 2016

7. Course Website: https://chaminade.instructure.com/courses/14250

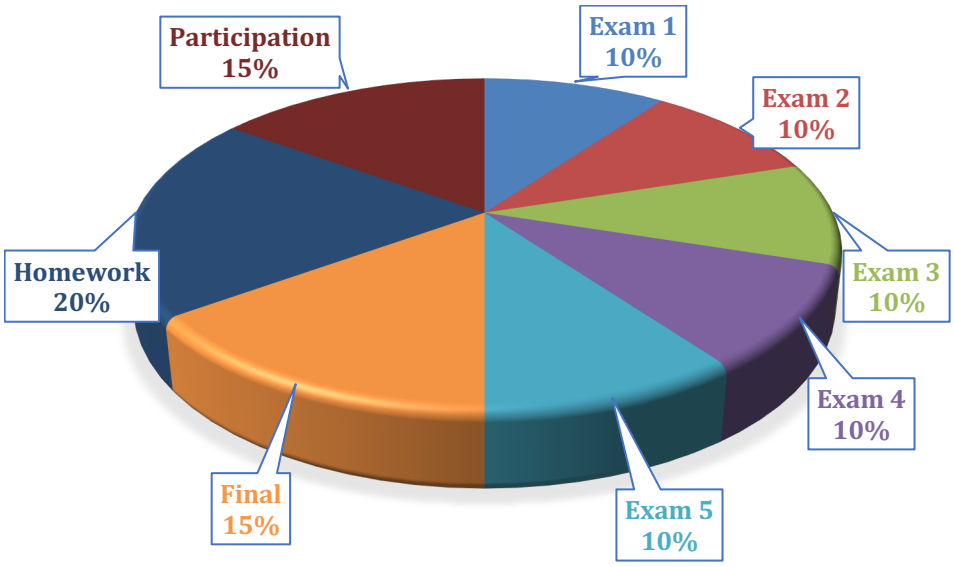
8. Technical Assistance for Canvas Users:

- Search for help on specific topics or get tips in Canvas Students
- Live chat with Canvas Support for students
- Canvas Support Hotline for students: +1-833-209-6111
- Watch this video to get you started
- Online tutorials: click on "Students" role to access tutorials
- Contact the Chaminade IT Helpdesk for technical issues: helpdesk@chaminade.edu or call (808) 735-4855

8.1 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 ʻIke: 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 ʻIke'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 ʻIke at tutoring@chaminade.edu or 808-739-8305.

9. Assessment



Participation includes the following:

- Weekly/Biweekly Reflections
- Study Aids
- Discussion – peer posts
- Attendance

Homework may include the following:

- Discussion posts
- Worksheets
- Presentations
- Critical Thinking Questions
- Quizzes

10. Grading Scale

Letter grades are given in all courses except those conducted on a credit/no credit basis. They are interpreted as follows:

A 90-100% = Outstanding scholarship and an unusual degree of intellectual initiative
B 80-89% = Superior work done in a consistent and intellectual manner
C 70-79% = Average grade indicating a competent grasp of subject matter
D 60-69% = Inferior work of the lowest passing grade, not satisfactory for fulfillment of prerequisite course work
F <60% = Failed to grasp the minimum subject matter; no credit given

10.1 Reading Assignments

- The required reading assignments are listed in your course outline.
- Exam questions will cover both lecture and reading material.
- You are responsible for all reading material regardless of whether the particular topic has been covered in lecture

10.2 Missed work, makeup exams and extra credit:

- Missed work, makeup exams and quizzes are not accepted/given unless a student has contacted the instructor within 24 hours of the missed class period to discuss the circumstances surrounding the absence. If absence is due to illness and doctor's written excuse may be required.
- Extra credit opportunities may be available during the course of regular lectures or may be written into exams. In addition, you can decide to give a 5 – 15-minute PowerPoint, oral presentation of a scientific, research journal article pertaining to the class material for extra credit points.

11. **(Tentative) Course Schedule (subject to change as instructor deems necessary)**

Week	Date	Lecture (Topic & Chapter)	Assignments (see canvas for due dates)
1	Jan 11	The Chemical Context of Life Chp 2 (Campbell)	Chp 2 & 5 Study Aids
			Chp 2 & 5 Quiz
2	Jan 18	The Structure & Function of Large Biological Molecules – Chp 5 (Campbell)	
		The Structure & Function con't Chp 5	
3	Jan 25	DNA Structure Chp 16 (Campbell)	Chp 16 Study Aids; Chp 16 Quiz; Week 2 Discussion
			EXAM 1 Chp 2,5,16 (Campbell) - due Feb 1st noon
4	Feb 1	Prokaryotes Chp 27 (Campbell), Chp 4? (Becker)	Virus Study Aids, Virus Quiz
			Prokaryote Study Aids Bacteria Quiz
5	Feb 8	Eukaryotes & The Endomembrane System Chp 6 (Campbell), Chp 4 & 12 (Becker)	Eukaryote Study Aids Week 4 Discussion
6	Feb 15	Membrane Structure & Function Chp 7 (Campbell), Chp 7& 8? (Becker)	Cellular Membranes Study Aids
			Cellular Membranes Quiz Week 6 Discussion
7	Feb 22	Membrane Structure & Function con't Chp 7 (Campbell), Chp 7&8 (Becker)	
			EXAM 2 Chp 6,7,27 (Campbell), 4,7,8,12 (Becker) - due Mar 1st noon
8	Mar 1	Introduction to Metabolism Chp 8 (Campbell), Chp 5 & 6 (Becker)	Metabolism Study Aids

9	Mar 8	Cellular Respiration Chp 9 (Campbell)	Cellular Respiration Study Aids Week 8 Discussion
10	Mar 15	Photosynthesis Chp 10 (Campbell)	Photosynthesis Study Aids
			EXAM 3 Chp 8,9,10 (Campbell), 5,6 (Becker) - due Mar 22nd noon
11	Mar 22	**Spring Break**	
12	Mar 29	Cytoskeleton Chp 15? (Becker)	Cytoskeleton Study Aids, Week 10 Discussion
13	Apr 5	Cellular Movement Chp 16? (Becker)	Cellular Movement Study Aids
14	Apr 12	Cellular Communication & Signal Transduction Chp 11 (Campbell), Chp 14? (Becker	Cellular Communication Study Aids
15	Apr 19	Cellular Communication & Signal Transduction con't	
16	Apr 26	Cell Cycle Chp 12 (Campbell), Chp 19 (Becker)	Cell Cycle Study Aids
			EXAM 4 Chp 11,12 (Campbell), 14,15,16,19 (Becker) - due May 3rd noon
17	May 3	**Finals Week**	

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

12.1 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.

12.2 Alignment of BI216 with Marianist and Hawaiian values of the University

- BI216/L Cellular and Organismal Biology II lecture and lab provides an *integral quality education* as it is an introductory science course which provides students a foundation that will be necessary to be successful in several upper division science courses, including but not limited to BI320/L, BI321/L, BI411L and BI471/L. As each new topic is introduced throughout the semester, a point is made to link the current subject matter with those future biology courses. Additionally, it is highlighted how the subject matter may be integrated with other sciences like chemistry and physics so that students understand that this BI216 course, as well as biology in general, is not a standalone course. To be successful and utterly understand biology one needs to understand how it relates to the bigger scientific community.

- This course also focuses on *educating in the family spirit*. This is done by emphasizing that science is not done in a vacuum. Throughout the semester there are several small group projects/presentations both within the lecture and the lab. These are designed to not only assist student in learning the subject matter but to encourage them to build relationships within the peer groups. In order to foster collaborative learning homework assignments are given such that students are instructed to answer in their own words; however students are strongly encouraged to work with their peers to find and discuss the answers to these questions.

13.1. Late Work Policy

- Presence in class is mandatory & necessary in order for a student to fully grasp concepts. 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. 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.
- If you miss a class it is **YOUR** responsibility to ask the instructor or your classmates for the information that you missed and to pick up any handouts that may have been distributed.
- Any missed work that is turned in late and graded may receive up to a one grade deduction. So, if the assignment was graded as A work, due to being late it may be decreased to a B.
- Any missed work that is turned in late without any prior discussion with the instructor will not be accepted and will be given a score of zero.

13.2. Grades of "Incomplete"

Students and instructors may negotiate an incomplete grade when there are specific justifying circumstances. 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 may not be extended.

13.3. Writing Policy

If written assignments are given expectations relating to that assignment will be provided at that time. All written work is expected to be done in the student's own voice. Plagiarism is not allowed, and any student suspected of plagiarism will be subject to Chaminade University Policy. Additionally, the plagiarized assignment will be given a score of zero.

13.4. Instructor and Student Communication

- *E-mail:* Questions for this course can be emailed to the instructor at jolene.cogbill@chaminade.edu. Online, in-person and phone conferences can be arranged. Response time will usually take place within 24 hours of receiving your initial correspondence.
- *Assignment Feedback & Grading:* To the best of the instructor's ability, feedback on course assignments and grading will be done within one week of the assignments due date. If the instructor is unable to meet this one-week time frame, students will be made aware in a timely manner and given a revised timeframe.

13.5. Cell phones, tablets, and laptops

Music Devices and Cellular Phones: Unless specifically permitted by your instructor, use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes, as it is discourteous and may lead to suspicion of academic misconduct. Students unable to comply will be asked to leave class.

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.

13.6. Disability Access

If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from the Counseling Center by the end of week three of the class, in order for instructors to plan accordingly. If a student would like to determine if they meet the criteria for accommodations, they should contact the Kōkua ʻIlke Coordinator at (808) 739-8305 for further information (ada@chaminade.edu).

13.7. 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.

13.8. Attendance Policy

The following attendance policy is from the 2019-2020 Academic Catalog (p. 54-55). Faculty members should also check with their divisions for division-specific guidelines.

- Students are expected to regularly attend all courses for which they are registered. Student 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 ADA 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.

13.9. Academic Conduct Policy

From the 2019-2020 Undergraduate Academic Catalog (p. 39):
Any community must have a set of rules and standards of conduct by which it operates. At Chaminade, these standards are outlined to reflect both the Catholic, Marianist values of the institution and to honor and respect students as responsible adults. All alleged violations of the community standards are handled through an established student conduct process, outlined in the Student Handbook, and operated within the guidelines set to honor both students' rights and campus values.

Students should conduct themselves in a manner that reflects the ideals of the University. This includes knowing and respecting the intent of rules, regulations, and/or policies presented in the Student Handbook, and realizing that students are subject to the University's jurisdiction from the time of their admission until their enrollment has been formally terminated. Please refer to the Student Handbook for more details. A copy of the Student Handbook is available on the Chaminade website.

For further information, please refer to the Student Handbook: https://chaminade.edu/wp-content/uploads/2019/08/NEW-STUDENT-HANDBOOK-19-20-Final-8.20.19.pdf

13.10. 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 37.5 hours of engagement. For example, in a one credit hour traditional face to face course, students spend 50 minutes in class per week for 15 weeks, resulting in a minimum of 12.5 instructional hours for the semester. Students are expected to engage in reading and other assignments outside of class for at least 2 additional hours per week, which equals an additional 25 hours. These two sums result in total student engagement time of 37.5 hours for the course, the total engagement time expected for each one credit course at Chaminade.

The minimum 37.5 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.