

BI216 -- Cellular Biology

Spring 2018

Syllabus

Instructor: Dr. Michael Weichhaus
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Office Hours: Wed: 15:00 - 17:00 and Thu: 9:00 - 11:00
Class Hours: MWF 10:30 - 11:20; Clarence T.C. Ching Hall, Room 253

Texts:

- Reece, J., "Campbell Biology", Tenth edition (2014), Pearson Education Inc
- Hardin, J., "Becker's World of the cell", Ninth Edition (2016), Pearson Education Inc

Concurrent enrollment in BI100 and BI216L recommended.

Aims of the course: This course prepares the student for further education in advanced biology courses or related fields by demonstrating the fundamental principles of cellular biology. It introduces the student to the cell as the basic unit of life and details its essential functions, while distinguishing between prokaryotic and eukaryotic cell types. The student will further have an opportunity to develop skills in critical thinking and reading scientific literature.

At the end of the course you should be able to answer these questions:

1. How is the cell the basic unit of life?
2. How do materials enter and leave the cell?
3. What are the structures and functions of the cell? What is the relationship between structures and their function?
4. What are the stages of the cell cycle and how is it regulated?
5. What are the differences between prokaryotic and eukaryotic cells?
6. What are the differences and similarities between plant and animal cells?
7. What are the biological macromolecules of the cell?
8. How do the cellular organelles interact to carry out cellular metabolism?
9. How do cells produce and harvest chemical energy? What are the differences and similarities between how plant and animal cells accomplish this?

Lecture Assignments

1. Lecture topics are listed on the attached outline. Additional readings and assignments may be given.
2. Each student will be expected to complete 4 summaries of **biological research** articles published in scientific journals. These articles will be provided by the instructor **TWO** weeks before the assignment is due. Each will consist of a 250-500 word summary based on the criteria listed below.
3. Attendance is expected in lecture sessions. A sign in sheet will be passed around during each class and unexcused absences (more than 3) may result in a decrease in grade by one grade level. If you know that you will be unable to attend a class then please let me know by e-mail. Unexcused absence for two consecutive weeks may result in the student being withdrawn from the course without notice. The student is responsible to catch-up on all topics/material covered during their absence.

Evaluation of Student Performance

1. Separate grades are given for lecture and laboratory. It is possible to receive different grades for lecture and laboratory.
2. Lecture exams may be curved, if class average falls below 70%. There is no curve for individual assignments.

3. There will be four lecture exams and one final exam for this course. Exam schedule is attached.
4. The final examination is a two-hour comprehensive examination including topics from the beginning of the course.
5. Extra credit work is available on canvas.
6. Missed exams can only be made up for valid excuses (to be determined by the instructor). In cases of illness, a physician's note is necessary.
7. The lecture grade will be determined in the following manner:

Summaries	10 percent	Strict scale:	90% = A
1 st Lecture Exam	15 percent		80% = B
2 nd Lecture Exam	15 percent		70% = C
3 rd Lecture Exam	15 percent		60% = D
4 th Lecture Exam	15 percent		Below 60% = F
Weekly canvas quizzes	10 percent		
Final exam	<u>20 percent</u>		
	100 percent		

Class standing:

The instructor, prior to the withdrawal deadline, will notify students with grades of D or lower. Students receiving deficiency notices are required to arrange a conference with instructor.

Departmental and University Policies:

1. Disability Access

Pursuant to several 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 basis of disability and are eligible for reasonable accommodations or modifications in the academic environment to enable them to enjoy 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 at 808-735-4845 for further information.

2. 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. Should you want to speak to a confidential source you may contact the following:

- a. Chaminade Counseling Center 808 735-4845.
- b. Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

3. Attendance Policy

You are solely responsible for your learning. Attendance during lecture is one way to familiarize yourself with the learning material, however you may by now have discovered more effective ways of learning. As such attendance during lecture is not mandatory. You are responsible to familiarize yourself on all topics/material covered during your absence.

4. Academic Conduct Policy

The success of the Honor Code is made possible only with the acceptance and cooperation of every student. Detailed policies on Academic Conduct can be found in the Student Handbook. Each student is expected to maintain the principles of the Code. Example of Honor Code violations include, but are not limited to:

- Giving or receiving information from another student during an examination;
- Using unauthorized sources for answers during an examination;
- Illegally obtained test questions before the test;
- Any and all forms of plagiarism – submit all or part of someone else's work or ideas as your own;
- The destruction and/or confiscation of school and/or personal property.
- Violations of the Honor Code are serious. They harm other students, your professor, and the integrity of the University. Alleged violations will be referred to the Office of Judicial Affairs. If found guilty of plagiarism, a student might receive a range of penalties, including failure of an assignment, failure of an assignment and withholding of the final course grade until a paper is turned in on the topic of plagiarism, failure of the course, or suspension from the University.

Violations of Academic Integrity: 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.
- Plagiarism: Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgment of the source).
- 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 includes, but is 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 of 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.

On-Campus Tutoring

- Retention, Advising, and Career Preparation offers free, one-on-one tutoring for all undergraduate students at Chaminade. Subjects tutored include, but are not limited to: biology, chemistry, math, nursing, English, etc. The tutoring corps consists of trained Peer and Professional Tutors.
- Tutoring is available by appointment only. Tutoring takes place in either the Student Support Services building during the hours of 8:30 a.m. to 4:30 p.m., Monday to Friday.
- In order to receive tutoring, a student can visit the Student Support Services building and complete an information form. After submitting this form, a staff member will assist the student in creating
 - an online account that allows him/her to book a tutoring appointment through the online system.
- All appointments must be made two days prior to the desired appointment. Cancellations must be made 24 hours in advance.

Online Tutoring through Smarthinking

- All CUH students are eligible to use Smarthinking, an online tutoring system. Students are able to access Smarthinking via their canvas account.
- Through Smarthinking, students are able to connect in real-time with an expert educator in a variety of subjects using a virtual whiteboard technology. Students also have an option to schedule a 30-minute appointment with a tutor of their choice. The Online Writing Lab provides students with the ability to receive a detailed, personalized critique of any written assignment through a formal critique process.
- All sessions are archived and available for students to review at any time for studying or test preparation.

For any questions related to tutoring services, please contact Nicolle Bekers, Tutor Coordinator, at nicolle.bekers@chaminade.edu.

Appropriate Technology

1. Please have a mobile device (e.g. cell phone, tablet, laptop) with you in class. Lecture slides will be available to you prior to class through google slides. These are provided to you as an additional learning tool.
2. Participation in in class polling is encouraged through PollEverywhere. Instructions will be provided during class. (pollev.com/weichhaus).
3. From time to time, your understanding of class material may be assessed through online quizzes. (kahoot.it)

Cell Biology Research Article Summaries

1. Each student is to submit a summary of scientific article pertinent to biology. The principle objective of the summary is to expose and engage the student in reading and understanding scientific literature. Another objective is to increase the student's ability to concisely summarize scientific information.
2. The research articles to be summarized will be provided by the instructor **TWO** weeks before the summary due date below. Students are expected to submit individually written summaries. Group work, interaction with the instructor and seeking help online is desired.
3. There will be four summaries due during the semester. The summaries will count as a total of 10% of your grade (2.5% each).
4. Summaries must be typed or word processed (use 12 point font). University writing standards are expected. Summaries should be between **250-500 words**.
5. Submission must be by uploading your work to canvas. Submission dates are outlined below, the time of submission is 11:59pm.
6. Late submission policy: Late submission of up to 24h will result in one letter grade reduction in your grade, submissions less than 48h late will result in two letter grades deduction. Submission more than 48h late will result in a 0 for the assignment.

Canvas Quizzes

In order to enhance your learning and understanding of cell biology, you will be quizzed weekly on the topics that are being discussed in class. The canvas quizzes will be due on Mondays and based on the previous week's content. If you are unsatisfied with your initial result, you have the option to repeat the quiz once. The highest score will be used for your grade.

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Week	Date	Lecture	Chapter	Comments
1	1/15	Martin Luther King Jr. Day Holiday – No class		
	1/17	Chemistry of the cell	Chapter 2	
	1/19			
2	1/22	The macromolecules of the cell	Chapter 3	
	1/24			1 st research article handout
	1/26	Cell and Organelles	Chapter 4	
3	1/29			
	1/31	EXAM #1		
	2/2	Bioenergetics	Chapter 5	
4	2/5			
	2/7		Summary 1 due	
	2/9	Enzymes	Chapter 6	
5	2/12			
	2/14	Membranes	Chapter 7	
	2/16			
6	2/19	Presidents' Day Holiday – No class		
	2/21	Transport across membranes	Chapter 8	2 nd research article handout
	2/23			
7	2/26			
	2/28	EXAM #2		
	3/2	Glycolysis and Fermentation	Chapter 9	
8	3/5			
	3/7		Summary 2 due	
	3/9	Cellular Respiration	Chapter 10	
9	3/12			
	3/14			
	3/16	Photosynthesis	Chapter 11	
10	3/19			
	3/21		3 rd research article handout	
	3/23	EXAM #3		
	3/26	Spring Recess		
	3/28			
	3/30			
11	4/2	Endomembrane system	Chapter 12	
	4/4			
	4/6	Cytoskeletal Systems	Chapter 13	
12	4/9			
	4/11	TBD		Summary 3 due
	4/13	Cellular Movement	Chapter 14	
13	4/16			
	4/18	Cell Adhesions/Junctions and ECM	Chapter 15	4 th research article handout
	4/20			
14	4/23	EXAM #4		
	4/25	Structural Basis of Information: DNA	Chapter 16	
	4/27			
15	4/30	Cell Cycle	Chapter 24	
	5/2			Summary 4 due
	5/4			
16	5/10	Final Exam: 11am - 1pm		

Every effort has been made to insure 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.