Introduction to Cellular and Molecular Biology
(Biol 111-07 Fall 2016)

Lectures:	M,W,F 8:30-9:20, Harbor Walk West 213
Instructor:	Professor Courtney Gerstenmaier
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Office:	65 Coming St. Rm 102
Office Hours:	M,W,F: 9:30-10:30 or by appointment

Course Overview: This introductory biology class provides a background for understanding and evaluating contemporary topics in biology. Students develop a foundational understanding of core concepts to use and on which to expand in upper level courses. They also develop the critical competencies that form the bases for the practice of science and use of scientific knowledge.

Course Objectives:

- Students *will understand* fundamental principles of cellular and molecular biology
- Students *will learn* factual knowledge (terminology, classifications, methods, trends)
- Students *will think* about applications of course material (to improve thinking, problem solving, and decisions)
- Students *will have an appreciation* of related applications to real-life of the theories they learn

Student Learning Outcomes

- Students will be able to identify the different biological molecules and their functions in living organisms
- Students will become familiar with the diversity, structure, and function of cellular organelles
- Students will comprehend how living organisms acquire energy from the environment and how energy is converted into different forms through processes of photosynthesis, cellular respiration, and fermentation
- Students will demonstrate an understanding of cell division including both mitosis and meiosis
- Students will demonstrate understanding of the basics of Mendelian genetics
- Students will demonstrate an understanding of the mechanisms of DNA replication, RNA transcription, and RNA translation
- General Education Outcomes can be found on our OAKS page

Resources: Biological Science **6th** edition by Scott Freeman et al.
Access to MasteringBiology

Prerequisite: None

Co-requisite: Biology 111L

COURSE ASSIGNMENTS

Tests: We will have three tests and a final cumulative exam (with some new material) that will be administered during the lecture portion of the course. These tests are designed to assess your knowledge of the subjects covered. They will consist of multiple choice, true-false, matching, and short answer questions.

Class Reading Quizzes and Assignments: These will be online quizzes and assignments administered through the MasteringBiology companion software that are related to the course readings.

Class Discussions: During this course we will be using case studies, polls, and quizzes to begin our exploration into various topics. These tools will provide us with a jumping off point for exploring abstract topics and making them

more relatable. During that discussion we will be using Poll Everywhere to answer questions and prompt discussion. This system works through your cell phones, so please bring them to class everyday. Participation grades will be based partly on participating actively in polling responses.

Science in the News Paper: This is a short 2-page paper that summarizes an interesting science article that you find in the scientific press and discusses how the scientific finding either relates to your life or impacts human society. The goal of this assignment is to discover the connection between science and our daily lives.

Presentation: At the beginning of each class, 1 student will present "fun" information relevant to cellular and molecular biology (<5 minutes). This could be a short video, a talk about a recent finding in the news, a poem, or any other "fun" activity. Students will sign up for a presentation date at the beginning of the course (these will be posted on OAKS) and should plan to arrive 5-10 minutes before class on the day of their presentation. Be sure that your "fun" activity differs from previously presented activities. At the end of the semester the class will select their favorite presentations and awards will be presented!

Note: Missing an assignment, test, or final without permission from the instructor will result in a zero. Make-up assignments/tests/finals will not be given except under extenuating circumstances. If the student cannot be present, they are expected to contact the instructor BEFORE the assignment/test/final and will be asked to obtain an official excuse from the dean of undergraduate affairs office before rescheduling. Whether the student is allowed to make- up the assignment/test/final is entirely at the discretion of the instructor regardless of a letter from the dean

Grading of Assignments: The following criteria will be used to calculate the grade.

Three In-class Exams:	35%
Final Exam (cumulative):	25%
Class Reading Assignments:	15%
Science in the News Paper:	10%
Class Discussions:	10%
Short Presentation:	5%

ONLINE COURSE COMPONENTS

OAKS: This is the College of Charleston's course management system. It is an integral part of many of our courses and we will be making use of it during the semester. OAKS is where any supplemental class readings, notes, news, powerpoints, etc. will be located.

Mastering Biology: (www.MasteringBiology.com) This is an online learning system that we will be using throughout the course that is connected to your textbook. We will be making use of their quiz and other assignments. This site also contains an online version of the textbook. To register for the class use the following Course ID: BIOL111GERSTENMAIER. For more information on how to register look on our OAKS page under syllabus.

Poll Everywhere: This is a program that works through cell phones, tablets, and computers to gain live feedback during lectures. We will be using this as part of our in class discussions, so please bring a device that works with the program to class.

STUDENT SUPPORT

Office Hours: Please come see me if you need any additional help in my class or the lab or are just looking for some general advice about your academic path here at the college. I have scheduled office hours on Monday, Wednesday, and Friday that will occur after our class in Harbor Walk Rooms 309 or 311. I will also happily meet you in my office at 65 Coming Street by appointment.

Supplemental Instruction (SI): I encourage you to attend your SI sessions. These sessions offer you the chance to discuss course concepts, develop study strategies, work problems, and review notes with students who have already taken the course.

Center for Student Learning: I encourage you to utilize the Center for Student Learning's (CSL) academic support services for assistance in study strategies, speaking & writing strategies, and course content. They offer tutoring, Supplemental Instruction, study strategy appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843)953-5635.

Student Accommodations: Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged. For more information visit: http://disabilityservices.cofc.edu/index.php

COURSE POLICIES

Attendance: While attendance is not mandatory it is an essential component of the course. The most beneficial parts of this course are going to occur through our in-class discussions. These discussions are factored into your grade and attendance will be measured through participation in the poll questions.

Classroom Courtesy: A movie theater and a classroom might not have much in common except when it comes to the distraction of electronic devices. Students are asked to keep all electronic devices on silent and out of sight unless being used for Poll Everywhere questions. No electronics will be allowed during exams. Exceptions will be made in extreme situations such as spouses anticipating the birth of a child or a serious emergency. Permission to leave an electronic device on should be obtained prior to class.

Grading Scale:

93 and above: A	73-76.9: C
90-92.9: A-	70-72.9: C-
87-89.9: B+	67-69.9: D+
83-86.9: B	63-66.9: D
80-82.9: B-	60-62.9: D-
77-79.9: C+	below 60: F

Academic Integrity: Students are expected to behave in an honest and responsible manner. Violations of the honor code are offensive and will generally be dealt with severely. We will adhere to the following policy as quoted from the Honor Council's recommended guidelines:
"Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student's actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance.

Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php

Tentative Schedule

Date	Topic	Readings
Aug 24	Introduction	
Aug 26	I. Biology and The Tree of Life	Ch. 1
Aug 29** – Sep 2	II. Molecular Origin and Evolution of Life A. Water and Carbon B. Macromolecules **Aug 29 Last day of drop-add	 Ch. 2 Ch. 3,4,5,6
Sep 5 – Sep 9	C. Macromolecules Cntd.	Ch. 3,4,5,6
Sep 12	**Test 1**	
Sep 14 – Sep 16	III. Cell Structure and Function A. Inside the Cell	 Ch. 7
Sep 19 – Sep 23	B. Cell-Cell Interactions	Ch. 11
Sep 26 – Sep 30	C. Energy and Enzymes	Ch. 8
Oct 3 – Oct 7	D. Cellular Respiration and Fermentation	Ch. 9
Oct 10 – Oct 12	E. Photosynthesis	Ch. 10
Oct 14	**Test 2**	
Oct 17 – Oct 21	IV. Gene Structure and Expression A. The Cell Cycle	Ch. 12
Oct 24 – Oct 28**	B. Meiosis **Oct 27 Last day to withdraw with a grade of "W"	Ch. 13
Oct 31 – Nov 2	C. Mendel and the Gene	Ch. 14
Nov 4	D. DNA and the Gene	Ch. 15
Nov 7	Fall Break	
Nov 9 – Nov 11	E. How Genes Work	Ch. 16
Nov 14	**Test 3**	
Nov 16 – Nov 18	F. Transcription, RNA Processing, and Translation	Ch. 17
Nov 21	F. Transcription, RNA Processing, and Translation Cntd. **Science in the News Paper Due**	Ch. 17
Nov 23 – Nov 25	Thanksgiving Break	
Nov 28 – Dec 2	H. Gene Expression in Bacteria I. Gene Expression in Eukaryotes J. Molecular Revolution	Ch. 18 Ch. 19 Ch. 20
Monday, Dec 5	K. Genes, Development and Evolution	Ch. 21
Wednesday, Dec 7	**Final Exam 12:00 pm**	