

Honors 151 Introduction to Cell and Molecular Biology

HONS151-01 Fall 2016: Monday, Wednesday, Friday; 10:00-10:50 AM in SSMB 138

Instructor: Dr. Mark D. Lazzaro (lazzarom@cofc.edu, 953-7180)

Office Hours: Unfortunately Dr. Lazzaro's office and lab are 2 miles from campus at 645

Meeting Street because the Rita Hollings Science Center is being renovated. He is available in the SSMB atrium after this class. He is also available a couple afternoons in the library at a table near the Starbucks. The details will be sorted out after the supplemental instruction schedule is in place. You can also set up an appointment.

Course Objectives:

This is a foundation course for science majors emphasizing the concept of structure and function of biological systems at the molecular and cellular levels. The course has no prerequisites.

Honors 151 LAB is a co-requisite, so you must also be registered for lab or have already passed the lab.

Student Learning Outcomes:

Students will demonstrate:

- A detailed understanding of the underlying components of biological systems at the molecular and cellular levels including , biochemistry, biochemical and molecular evolution, cell function, respiration, photosynthesis, genetics, and molecular biology.
- The ability to use the scientific method in obtaining, analyzing and evaluating empirical evidence for cellular structure and processes.
- The ability to read and discuss the scientific literature.

How to do well in this course:

Reading the text and attending lecture are required. This is a detail-oriented course and you will not do well if you never read the book. If you must miss lecture, get the notes from another student in class.

Read the text assignments before lecture. Take notes during lecture. Within 1-2 days (before the next class), rewrite your notes to incorporate the textbook material, the homework, and what you went over in supplemental instruction. This makes you ACTIVELY learn the material, and makes a difference in what you remember.

When you study the book, answer the questions that are in blue throughout the chapters.

Come to class on time, every time. You will get a 1-question quiz at the beginning of each lecture. The question will be on something you learned in the last lecture.

Do the homework posted on OAKS. Dr. Lazzaro wrote all these assignments. They help you learn the material.

Ask Dr. Lazzaro questions! He is actually a nice guy but can't help you if you do not ask.

Go to supplemental instruction. These sessions meet several times per week with a schedule based on when students are available. Emily Sandifer (sandiferev@g.cofc.edu) is your SI leader.

She will help you actively learn the material and help you review concepts before the exams. Many years of data show that students who regularly attend SI do better in the course.

Use the Center for Student Learning on the first floor of the Addlestone Library. There is a walk-in science tutoring lab (<http://csl.cofc.edu/labs/science-lab/index.php>). Go to their seminars and workshops on things like time management, note taking, effective studying, and test taking strategies (<http://csl.cofc.edu/study-strategies/workshops/index.php>). Many of the workshops are online (<http://csl.cofc.edu/study-strategies/workshops/online-workshops/index.php>) so you can watch them whenever you want.

Study with a partner or group and talk through the information. If you can explain concepts to another person, you will have them mastered.

Required Materials:

Biological Science, 6th edition (2017), by Scott Freeman. Hard copy or electronic access is fine.

An I-Clicker. Version 1 is fine. Buy or rent one at the CofC bookstore or online at www1.iclicker.com or Amazon. Register it at <https://www1.iclicker.com/register-clicker/>.

Recommended Materials:

Buy colored pens or pencils for your notes. I use several colors in lecture. Get a dedicated notebook for the class to stay organized.

Course Website:

The website is on OAKS. Log on to My Charleston, Click on OAKS, Click on this course. Click on CONTENT to see the homework assignments and lecture material posted after class. Click on QUIZZES for practice exams. Click on GRADES to see your scores and estimated course grade. It's a REALLY GOOD IDEA to do the optional homework and practice exams!

You can directly access OAKS at <https://lms.cofc.edu/>.

Quizzes:

There is a very brief quiz at the beginning of each lecture using the I-clickers. The quizzes are based on the material from the last lecture and encourage you to stay up to date on your studying, and to be on time for class. On each quiz you earn 1 point for taking the quiz and 1 point for getting the correct answer. There will be about 35 quizzes, which is about 70 points. You can earn a maximum of 50 points for quizzes. You get EXTRA CREDIT for any additional quiz points (up to about 20 points). Because of this extra credit opportunity,

THERE ARE NO MAKEUP QUIZZES, EVEN IF YOU ARE JUST LATE FOR CLASS AND MISS THE QUIZ.

Exams:

Exams are multiple choice and short answer. Exams are challenging and require you to know detail and think analytically. Exam material is based primarily on lecture and homework and secondarily on the relevant sections in the text. There are four exams and a cumulative final. Each exam is worth 100 points. The four exams are weighted in your final grade. Your lowest

exam score counts for 16% and the other three exam scores count for 19% each. This helps a bit if you really struggle on one of the exams.

The cumulative final is worth 100 points.

You cannot make up exams without a valid excuse approved by the Office of Student Affairs.

YOU WILL RECEIVE A ZERO IF YOU MISS AN EXAM WITHOUT A VALID EXCUSE AND THERE WILL BE NO MAKEUP EXAM.

Grades:

Quizzes	50 points	(9%)
Exams 1-4	400 points	(73%), weighted at 16%, 19%, 19% and 19%
Final	100 points	(18%)
TOTAL	550 points	(100%)

Remember, if you earn more than 50 points on the quizzes, the rest (up to about 20 points) counts as extra credit. **THIS IS THE ONLY EXTRA CREDIT IN THE COURSE.**

Your final grade is determined as a percentage of the 550 total points as follows:

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	0-59

Student conduct in this course is governed by the College of Charleston Honor Code.

If you will require special accommodations to complete any of the reading, speaking, or writing requirements for this course, please see Dr. Lazzaro as soon as possible.

Please see the syllabus insert posted on OAKS to read the required official language on academic integrity and on accommodations for students with disabilities.

General Education Requirement:

Completion of HONS 151 & 151L/ HONS 152 & 152L satisfies the College requirement for a general education science sequence. Please read the syllabus insert posted on OAKS to learn more about how this science sequence satisfies the general education requirement.

Honors 151 compared to Biology 111:

The same content is covered in both lectures but Honors 151 is run at a higher level. Exams and Quizzes are more challenging. I expect that everyone will read the text before class. I expect that everyone will do the optional homework. You will be assigned a short review article from the primary literature to read before each exam. I'll ask questions about the content on the exam. These readings are unique to Honors 151.

	Date	Lecture Topic	Text	Lab Week (Mon-Fri)
W	24-Aug	1 Introduction, Cell theory and Prokaryotes	1, 7.1	
F	26-Aug	2 Chemistry and Chemical Bonds	2	
M	29-Aug	3 Chemical Bonds and water	2	Termite Trails: Scientific Inquiry
W	31-Aug	4 Quantitative Chemistry and pH	2	
F	2-Sep	5 Thermodynamics	2, 8.1-8.2	
M	5-Sep	6 Lipids	6.1-6.3	Exploring Osmosis and Diffusion
W	7-Sep	7 Membranes, diffusion and osmosis	6.1-6.3	
F	9-Sep	8 Proteins	3	
M	12-Sep	9 Passive transport across membranes	6.4	Complete Osmosis Lab
W	14-Sep	10 Active transport across membranes	6.4	and Exploring Plant Metabolism
F	16-Sep	11 Enzymes	8.3-8.5	
M	19-Sep	EXAM 1: Cell theory - Active Transport		Student Projects 1: Plant Productivity
W	21-Sep	12 Oxidation-Reduction Reactions	8.2, 9	
F	23-Sep	13 Respiration	9	
M	26-Sep	14 Respiration	9	Student Projects 2: Research Proposal
W	28-Sep	15 Respiration	9	and Fruit Fly Genetics-1
F	30-Sep	16 Photosynthesis	10	
M	3-Oct	17 Photosynthesis	10	Student Projects 3: Data Collection
W	5-Oct	18 Carbohydrates	5	and Fruit Fly Genetics-2
F	7-Oct	19 Cell Structure and Function-eukaryotes	7	
M	10-Oct	20 Cell Structure and Function-eukaryotes	7	Student Projects 4: Data Collection
W	12-Oct	21 Cell to cell interactions	11	and Fruit Fly Genetics-3
F	14-Oct	EXAM 2: Enzymes - Cell Structure and Function		
M	17-Oct	22 Cell cycle	12	Student Projects 5: Draft Article
W	19-Oct	23 Mitosis	12	and Fruit Fly Genetics-4
F	21-Oct	24 Mitosis and Meiosis	12, 13	
M	24-Oct	25 Meiosis	13	Fruit Fly Genetics 5
W	26-Oct	26 Nucleic acids and Polymerization	4	and Lost in Timbuktu
Th	27-Oct	Last day to drop the course and receive a "W"		
F	28-Oct	27 DNA replication	15	
M	31-Oct	28 DNA replication	15	Fruit Fly Genetics 6 and Prepare for
W	2-Nov	29 Transcription	16, 17	Student Project Symposium
F	4-Nov	30 Transcription	16, 17	
M	7-Nov	FALL BREAK		NO LABS THIS WEEK
W	9-Nov	31 Ribosomes and Translation	16, 17	
F	11-Nov	EXAM 3: Cell interactions – Transcription		
M	14-Nov	32 Ribosomes and Translation	16, 17	Genetics and Molecular Biology of
W	16-Nov	33 Regulation of Gene Expression in Prokaryotes	18	Sickle Cell Anemia
F	18-Nov	34 Regulation of Gene Expression in Eukaryotes	19	
M	21-Nov	35 Regulation of Gene Expression in Eukaryotes	19	NO LABS THIS WEEK
W	23-Nov	THANKSGIVING BREAK		
F	25-Nov	THANKSGIVING BREAK		
M	28-Nov	36 Genetics	14	Student Project Symposium
W	30-Nov	37 Genetics	14	
F	2-Dec	38 Genetics	14	
M	5-Dec	EXAM 4: Ribosomes and Translation - Genetics		
W	7-Dec	(8-11 AM) CUMULATIVE FINAL EXAM		