

Biology 111 Introduction to Cell and Molecular Biology

BIOL111-03 Fall 2020: Monday, Wednesday, Friday; 2:00-2:50 AM in RITA 101

Instructor: Dr. Mark D. Lazzaro (lazzarom@cofc.edu)

Office Hours via Zoom: Tuesday and Wednesday 3-5. Click on the link on the course OAKS page. You may also make an appointment by email if those times don't work.

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.

Biology 111 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.

Required materials

We will use a free open resource Introductory Biology text available at <https://openstax.org/details/books/biology-2e>. You can use the textbook online or download a searchable pdf. You can also purchase a print version if you prefer from the campus bookstore or online. You DO NOT need the Introductory Biology book by Freeman et al. for this class.

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

Log on to My Charleston, Click on OAKS, Click on this course. Use the calendar to join Zoom lectures and to keep up with deadlines for reading and homework assignments. Click on CONTENT to see the lecture material and recordings posted after class. Click on QUIZZES to complete the reading assignments before class, the homework assignments after class, the practice exams, and the online lecture Exams. Click on GRADES to see your scores and estimated course grade. You can directly access OAKS at <https://lms.cofc.edu/>.

Attendance

Attending lecture is expected. We will meet virtually through Zoom MWF 2-2:50 until classes resume on campus. The Zoom sessions will be recorded and made available to you. Once we are back on campus, you MUST wear a mask to attend class. We are in a room large enough that the entire class can attend every MWF lecture while following the college social distancing guidelines. In class lectures will also be recorded.

While lectures delivered via Zoom or in class will be recorded and made available, this is a detail-oriented course and you will not do well if you consistently miss class. If you must miss lecture, watch the recording and take notes just as if you were in class.

Reading and homework assignments

The Reading assignments are designed to get you reading the content ahead of lecture and are due before we learn the material in class. The Homework assignments are designed to reinforce what we learn in class using the text, your notes, the power-point slides, and are due after we complete the material in class. You **MUST** complete reading and homework assignments on OAKS by deadline. Late assignments are not accepted. While about 350 points will be available, you earn a maximum of 300 points. This means you can get some answers wrong or miss a few assignments (not recommended) and still earn the maximum.

Exams

Exams are multiple choice. 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 exam. Each exam is worth 100 points.

If we remain on the current schedule, then Exams 1, 2, and 3 will be in class while Exam 4 and the Cumulative final will be online. Online exams will be administered through OAKS using the Respondus monitoring system to encourage honesty. This will require downloading the Respondus browser and details will follow.

YOU WILL RECEIVE A ZERO IF YOU MISS AN EXAM WITHOUT A VALID EXCUSE.

Grades

Reading and Homework Assignments	300
Exams 1-4	400
<u>Cumulative Final</u>	<u>100</u>
TOTAL	800 points

Your final grade is determined as a percentage of the 800 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

How to do well in this course (Dad advice from Dr. Lazzaro)

Do the reading and homework assignments on OAKS. Dr. Lazzaro wrote all these. They help you learn the material. **They are also a large part of your grade.**

You will get a lot more out of lecture if you read the relevant chapter beforehand. Actively take notes during lecture, don't just watch the powerpoint. 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.

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

Take the practice exams early to find out what you know and what you need to work on.

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

Go to supplemental instruction. These sessions meet several times per week with a schedule based on when students are available. Caitlyn Moss (mossccr@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-skills/workshops/index.php>). Many of the workshops are online (<http://csl.cofc.edu/study-skills/workshops/online-workshops/index.php>) so you can watch them whenever you want.

General education requirement and other official stuff

Completion of BIOL 111 & 111L/ BIOL 112 & 112L 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.

Student conduct in this course is governed by the College of Charleston Honor Code (<http://deanofstudents.cofc.edu/policies-and-procedures/honor-code-and-code-of-conduct.php>).

Veterans and active duty personnel with special circumstances (e.g. upcoming deployments, drill requirements, disabilities) are welcomed and encouraged to communicate these, in advance if possible, to the instructor.

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 official language on academic integrity and on accommodations for students with disabilities.

	Date			Lecture Topic	Chapters
W	26-Aug	Online	1	Introduction, Cell theory and Prokaryotes	1, 4
F	28-Aug	Online	2	Cell Structure and Function-eukaryotes	4
M	31-Aug	Online	3	Cell Structure and Function-eukaryotes	4
W	2-Sep	Online	4	Cell Structure and Function-eukaryotes	4
F	4-Sep	Online	5	Chemistry and Chemical Bonds	2
M	7-Sep	Online	6	Chemical Bonds, water	2
W	9-Sep	Online	7	pH, buffers, thermodynamics	2, 6
F	11-Sep	Online	8	Lipids	3
M	14-Sep	In class	9	Membranes, diffusion and osmosis	5
W	16-Sep	In class	10	Proteins	3
F	18-Sep	In class	11	Passive transport across membranes	5
M	21-Sep	In class		EXAM 1: Cell theory - Proteins	
W	23-Sep	In class	12	Active transport across membranes	5
F	25-Sep	In class	13	Enzymes	6
M	28-Sep	In class	14	Oxidation-Reduction Reactions	7
W	30-Sep	In class	15	Respiration	7
F	2-Oct	In class	16	Respiration	7
M	5-Oct	In class	17	Respiration	7
W	7-Oct	In class	18	Photosynthesis	8
F	9-Oct	In class	19	Photosynthesis	8
M	12-Oct	In class	20	Carbohydrates	3
W	14-Oct	In class	21	Cell to cell interactions	9
F	16-Oct	In class		EXAM 2: Passive transport - Carbohydrates	
M	19-Oct	In class	22	Cell cycle	10
W	21-Oct	In class	23	Mitosis	10
F	23-Oct	In class	24	Mitosis and Meiosis	10, 11
M	26-Oct	In class	25	Meiosis	11
W	28-Oct	In class	26	Nucleic acids and Polymerization	3
	28-Oct			Last day to drop the course and receive a "W"	
F	30-Oct	In class	27	DNA replication	14
M	2-Nov	In class	28	DNA replication	14
W	4-Nov	In class	29	Transcription	15
F	6-Nov	In class	30	Transcription	15
M	9-Nov	In class	31	Ribosomes and Translation	15
W	11-Nov	In class		EXAM 3: Cell to cell interactions - Transcription	
F	13-Nov	In class	32	Ribosomes and Translation	15
M	16-Nov	In class	33	Regulation of Gene Expression in Prokaryotes	16
W	18-Nov	In class	34	Regulation of Gene Expression in Eukaryotes	16
F	20-Nov	In class	35	Regulation of Gene Expression in Eukaryotes	16
M	23-Nov	In class	36	Biotechnology and the future	17
W	25-Nov			THANKSGIVING BREAK	
F	27-Nov			THANKSGIVING BREAK	
		Online	37	Genetics - Complete this before Monday 11/30	12, 13
M	30-Nov	Online	38	Genetics	12, 13
W	2-Dec	Online	39	Genetics	12, 13
F	4-Dec	Online		EXAM 4: Ribosomes and Translation - Genetics	
F	11-Dec	Online		(3:30-5:30 PM) CUMULATIVE FINAL EXAM	