

Biology 313-1: Cell Biology

Course Time: Monday, Wednesday, Friday 9:00-9:50 AM in SSMB 138

Instructor: Dr. Mark D. Lazzaro (lazzarom@cofc.edu), 843-953-7180

Office Hours: After lecture, before lab, or by appointment. Unfortunately Dr. Lazzaro's office is 2 miles from campus at 645 Meeting Street because the Rita Hollings Science Center is being renovated. It's difficult to just drop by but we can meet on campus as needed.

Course Objectives and Learning Outcomes:

This course focuses on the structure and function of cells. Specific topics include cell metabolism, membrane organization, organelles, compartmentation, membrane trafficking, the cytoskeleton, cell division, and cell signaling.

How to do well in this course:

Cell biology is a complicated subject. Most of you are seniors and I will expect you to work hard, come to class prepared and study effectively for exams. Attendance at lectures is required. I will expand on topics beyond what is covered in the text and you will be responsible for this material. Reading the text is required. This is a detail-oriented course and you will not do well if you never read the book. Lectures will make more sense if you read the text beforehand. If you must miss lecture, get the notes from a friend or from the website. Don't make the mistake of skipping lecture because you can get the notes to read just before the exam.

Required Text:

Hard copy or electronic access to Molecular Cell Biology, 7th edition (2013), by Lodish et al.

Recommended Materials:

Buy colored pens or pencils for your notes. I use several colors of markers in lecture.

Look at the textbook website for animations, videos, and online quizzes.

<http://bcs.whfreeman.com/lodish7e/>.

Course Website:

Powerpoint presentations and videos are available after class on the course website.

- 1) Go to OAKS
- 2) Select this class
- 3) Click on CONTENT

Additional book on 2 hour in-house reserve at the library:

Student Solutions manual for Molecular Cell Biology, 7th edition (2013) by Amato et al. This has the answers to the review questions at the end of each chapter. It is on reserve at the library so you don't have to buy it.

Quizzes:

There are twelve brief quizzes during the semester, usually on Mondays. The quizzes are based on the material from the previous few lectures and encourage you to stay up to date on your studying. Each quiz is 5 points and there are 12 quizzes, which is 60 points. You can earn a maximum of 50 points for quizzes so you get EXTRA CREDIT for any additional quiz points (up to 10 more points). This is the only extra credit for the course. You can only make up a quiz with a documented excuse (ex: documented illness, interview for post-graduate program, death in the family).

Exams:

Exams are essay and short answer. For Exam 1, sample questions will be on OAKS so you can see the testing style. There are four exams and a cumulative final in this course. Each exam is worth 100 points. The cumulative final is worth (50 points). My exams are challenging and require you to know detail and think analytically. Exam material is based primarily on lecture and the related sections in the text.

You cannot make up exams without a documented excuse approved by the Division of Student Affairs. Do not ask me to take an exam other than that scheduled for the rest of the class. All exams count.

Grades:

Points for the course are earned as follows:

Quizzes	50 points	(10%)
Exam 1	100 points	(20%)
Exam 2	100 points	(20%)
Exam 3	100 points	(20%)
Exam 4	100 points	(20%)
Final	50 points	(10%)
TOTAL	500 points	(100%)

Your final grade is determined as a percentage of the 500 total points as follows:

A	96-100	C	70-74
A-	90-95	C-	68-69
B+	85-89	D+	65-67
B	80-84	D	60-64
B-	78-79	D-	56-59
C+	75-77	F	0-55

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 come and see me as soon as possible.

Date	Topic	Chapter
F January 8	1 Intro to Cells and Chemistry	1 (all), 2.1, 2.2
M January 11	2 Cellular Chemistry and Thermodynamics, QUIZ 1	2.4
W January 13	3 Protein Structure	3.1, 3.2
F January 15	4 Enzymes	3.3, 3.4
M January 18	MARTIN LUTHER KING JR. HOLIDAY	
W January 20	5 Membrane organization, QUIZ 2	10.1, 10.2, 10.3
F January 22	6 Transport across membranes	11.1, 11.2, 11.4
M January 25	7 Transport across membranes, QUIZ 3	11.3, 11.5 11.6
W January 27	8 Metabolism and Mitochondria	12.1
F January 29	9 Mitochondria-Electron Transport	12.2
M February 1	10 Mitochondria-Electron Transport, QUIZ 4	12.2
W February 3	11 Mitochondria-Electron Transport	12.2
F February 5	Exam 1: 1-Cellular Chemistry through 10-Mitochondria ETC	
M February 8	12 Mitochondria ATP synthesis	12.3
W February 10	13 Chloroplasts and photosynthesis	12.4, 12.5
F February 12	14 Chloroplasts and photosynthesis	12.5, 12.6, 12.7
M February 15	15 Signal Transduction, QUIZ 5	15.3, 15.5
W February 17	16 Signal Transduction	15.6
F February 19	17 Transcription and Translation	4.1, 4.2, 4.3
M February 22	18 Translation, QUIZ 6	4.3, 4.4
W February 24	19 Translation	4.4
F February 26	20 Translation	4.4
M February 29	21 Transport through Nuclear Pores, QUIZ 7	8.3, 13.6
W March 2	22 Transport through Nuclear Pores	8.3, 13.6
F March 4	Exam 2: 11-Electron Transport through 20-Translation	
M March 7	SPRING BREAK	
W March 9	SPRING BREAK	
F March 11	SPRING BREAK	
M March 14	23 Protein targeting to Organelles, QUIZ 8	13.4, 13.5
W March 16	24 Endoplasmic Reticulum and Protein synthesis	13.1
F March 18	25 Endoplasmic Reticulum and Protein synthesis	13.1
M March 21	26 Endoplasmic Reticulum and Protein synthesis, QUIZ 9	13.2, 13.3
W March 23	27 Golgi-organization and protein sorting	14.2
F March 25	28 Golgi-coated vesicle formation	14.3
M March 28	29 Golgi-vesicle sorting and delivery, QUIZ 10	14.3
W March 30	30 Cytoskeleton-microfilaments and assembly dynamics	17.1, 17.2
F April 1	Exam 3: 21-Nuclear Pores through 29-Golgi	
M April 4	31 Cytoskeleton-microfilament associated proteins	17.3, 17.4
W April 6	32 Cytoskeleton-myosin and motility	17.5, 17.7
F April 8	33 Cytoskeleton-muscle cells	17.6
M April 11	34 Cytoskeleton-intermediate filaments and microtubules, QUIZ 11	18.7, 18.1, 18.2
W April 13	35 Cytoskeleton-microtubule dynamics, kinesin and dynein	18.3, 18.4
F April 15	36 Mitosis-control of the cell cycle	19.1, 19.3, 19.5
M April 18	37 Mitosis-spindle alignment and chromosome capture, QUIZ 12	18.6
W April 20	38 Mitosis-chromosome alignment and separation	18.6
Th April 21	39 Mitosis-cytokinesis	18.6, 19.6
F April 29 (8-11AM)	Exam 4: 30-Cytoskeleton through 39-Cytokinesis and CUMULATIVE FINAL	