

Biology 121

Cellular life: introduction to cell and molecular biology

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Office hours: Days 1 & 5: 9:40-11:00 and other times by appointment

Text: *Biology*, 8th edition, by Campbell and Reece (2008, Pearson). You might choose to purchase either the single hardcover text that will be used for the three-course sequence of introductory courses or the split paperback volume if you are taking only this course.

Laboratory: In-house manual—provided at the orientation session for your lab section
Carbon-less lab notebook (required)-purchased at the bookstore

Safety goggles also are required for lab and can be purchased at the bookstore.

Course designation and goals

BIOL 121 Cellular life: introduction to cell and molecular biology (4). This course includes the topics of biological chemistry, cell structure, metabolism, classical and molecular genetics. Laboratories provide the students with opportunities to investigate living organisms at a cellular and molecular level. Intended for science majors.

General information

During the term you will be responsible for reading the material listed on the syllabus **prior to** the class meeting the information is to be discussed. This requirement does suggest quizzes could occur. Lab is no exception. You are to be familiar with the labs and their objectives before coming into lab. Although we primarily will use the textbook for lecture, it also will be a reference for our laboratory work.

Presentation of materials will be through problem-based learning, discussion of relevant topics and lecture. Audio/ visual materials might be used in the lecture and laboratory sections as supplements to the information provided. Along with learning the material outlined in the course, it also is an objective of the course to strengthen student verbal communication skills. To meet this objective, students will participate in such activities including, but not limited to, solving problems in small groups, participating in group assignments outside of class, and helping to answer questions in the classroom. Together, these types of activities will work to foster better student understanding of the subject,

allow students to become comfortable interacting with peers, solidify the content of the course through more active learning, and increase the discussion-based environment of the classroom.

Lab exercises and assignments can be found in the required laboratory manual (see above) unless otherwise noted. Please refer to the general guidelines provided in your lab manual for assignment dates and specific requirements for lab.

You strongly are encouraged to discuss any issues you have with the course with me as well as the coordinator for the course, Dr. Lamberts. Any questions regarding the laboratory should be directed to your specific instructor, TA, or Mrs. Carol Jansky, laboratory coordinator.

Attendance

Class and laboratory attendance are **MANDATORY**. Please make sure that you notify me of absences in advance. You are responsible for all work you miss regardless of the reason. Laboratory attendance is a must for successful completion of the course and you are to attend the laboratory section to which you have been assigned.

In all fairness to students who attend class regularly and meet the course expectations, I will not be accepting late assignments. Everyone is expected to take the exams at the scheduled time. The specific dates for tests will be announced in class; a tentative schedule is provided below. Dates assignments will be due also will be announced in class when the assignment is made. The only exceptions are for family or medical emergencies (please provide me with written documentation such as a death notice or doctors excuse) or for participation in athletic events. In the latter case, student athletes should notify me **prior to the absence**. Once again, in fairness to students who take the exam at the scheduled time, no make up exams will be given. However, a verified family or medical emergency would be an exception, in which case a new exam consisting of essay/discussion questions would be given; it is the student's responsibility to schedule this make-up exam within 48 hrs of return to school.

Grades

To provide students with a forum to ask/discuss material prior to a test, I will schedule a review session prior to an exam. These are not mandatory but will provide you a good opportunity to clarify any questions you might have. The session date and time will be announced in lecture.

A student-based honor system in which you police yourself to insure others are not engaging in academic misconduct and therefore potentially lowering the achievements of others is strongly encouraged. Any misconduct seen by another student should be reported immediately and can be anonymous. The CSB/SJU plagiarism policy and guidelines will be followed and you strongly are suggested to familiarize yourself with

this policy. You may consult the Plagiarism policy web site as well as the CSB/SJU academic catalog.

Grading for Bio 121 will be based on the following examinations and assignments.

- Lecture exams will be administered during regular class periods at the announced times on the syllabus.
- The final exam **is** comprehensive.
- Homework assignments periodically will be posted on the web or announced in class—you will print them out and turn them in at the beginning of the indicated class period.

The specific contributions of the above assignments to your grade in Bio 121 are as follows:

Lecture exams 1-3	15-17% each
Exam 4	20-24%
Day 5/6 quiz average*	10%
Laboratory	25%
Total	100%

Cutoffs for letter grades will be made according to class means and distribution at the end of the semester. A typical scale is: 90-100% = A; 87%+ = AB; 80%+ = B; 77%+ = BC; 70%+ = C; 67%+ = CD; 60%+ = D; <60% = F.

* On day 5/6 (i.e., the last day of the cycle for your section) of each cycle you will be given a 10-pt quiz that will cover material from the previous lectures and, possibly, general questions on the upcoming lecture topics. If a major exam is scheduled for day 6 of the cycle, your quiz will be given on day 4. A total of 12 quizzes will be given during the semester; your top 10 scores will be used to determine your average for the quizzes. This average will comprise 10% of your final grade.

If you have any question(s) regarding a grade you should discuss this with the appropriate faculty member at the next class meeting.

Schedules

Following is the tentative lecture schedule for this course; the laboratory schedule is provided in your lab manual. The lecture schedule is only an approximation of the flow of material to be covered. If we encounter problems in a certain area, we may spend more time than scheduled for that topic. The lab schedule is fairly firm. Barring any unforeseen problem, we should maintain this schedule fairly close.

Tentative lecture schedule

Cycle	Topic(s)	Text
1	Intro to course	Ch 1
1	Basic chemistry	Ch 2
1	Basic chemistry, cont.	Ch 2
2	Water	Ch 3
2	Carbon chemistry	Ch 4
3	Survey of macromolecules	Ch 5
3	Cells (pro and eukaryotes), organelles, cytosol, cytoskeleton	Ch 6
3	Additional cellular organelles	Ch 6
4	Exam I	Ch 1-6
4	Membranes	Ch 7
4	Membranes, cont.	Ch 7
5	Energetics and enzymes	Ch 8
5	Enzymes, cont.	Ch 8
5	Respiration--glycolysis	Ch 9
6	Respiration cont. (Krebs and oxidative phosphorylation)	Ch 9
6	Photosynthesis-light dependent	Ch 10
6	Photosynthesis-light independent	Ch 10
7	Exam II	Ch 7-10
7	Cell communication	Ch 11
7	Mitosis and the cell cycle	Ch 12
8	Mitosis, cont.	Ch 12
8	Meiosis	Ch 13
8	Mendelian genetics	Ch 14
9	Mendelian genetics, cont.	Ch 14
9	Chromosomal basis of inheritance	Ch 15

9	Chroml. basis of inherit, cont.	Ch 15
10	Exam III	Ch 11- 15
10	DNA structure	Ch 16
10	Replication	Ch 16
11	Transcription and translation	Ch 17
11	T and T, cont.	Ch 17
11	Gene regulation	Ch 18
12	Gene regulation, cont.	Ch 18
12	Viruses	Ch 19
12	Viruses, cont.	Ch 19
Final exam	TO BE ANNOUNCED	comprehensive