



**PCB 3023**  
**Molecular Cell Biology**  
Fall 2014



**Course Description**

During this semester we will examine the biology of the cell. We will study its structure and function from the molecular level to the different sub-cellular components, and the regulation of different biological processes. Major topics will include genome structure and dynamics, organelle structure and function, metabolism, neurobiology, signal transduction pathways, the cell cycle, and cancer. Certain relevant topics covered in Genetics might be reviewed briefly but will not be discussed in depth. Therefore, only students who have already completed PCB 3063 or an equivalent should take this course.

**Instructor:**

*Dr. Walter Sotero-Esteve*  
Office: Bio 202 B  
e-mail: [wsotero@ucf.edu](mailto:wsotero@ucf.edu)  
Phone #: 407-823-4848

**Class Section:** 0001 (83538)

**Class Times & Room:**

MoWeFr 12:30-1:20 PM, CB1 104

**Instructor's Office Hours:**

Mo-Fr 11-12 N

**Teaching Assistant:** *Rogério Ferreira*

Office hours: WeTh 8:30-10 AM, Bio 202 B.

**References**

*Textbook:* Essential Cell Biology, 3<sup>rd</sup> edition, by Alberts *et.al.* Garland Science, 2010. Available at the UCF Bookstore.

*Supplemental materials:* all lecture notes with figures will be posted on Webcourses (the "Files" section of your PCB4723-14Fall 0001 course on [webcourses.ucf.edu](http://webcourses.ucf.edu)).

**Grading and Exam Schedule**

There will be four regular exams plus a comprehensive final exam, all of them consisting of multiple-choice questions. Each exam will be worth 75 points. You will receive a score of 0 for any exam that you miss. Make-up exams may be given under special circumstances, but the instructor will ultimately decide the merit of each case. All exam scores will be posted on Webcourses ([webcourses.ucf.edu](http://webcourses.ucf.edu)). The lowest of your *five* exam scores will be dropped and will not count toward your final grade. For example, if you take the first four exams and do not take the final exam, you will receive a score of 0 for the final exam but that score will be dropped and will not count toward your final cumulative score. The following formula will be used to calculate your final cumulative score and grade:  $\text{sum of your four highest exam scores}/3$ . (Do *not* divide each exam score by 75 or by 100 before adding them up.) The following grading scale will be applied: 90-100: A, 80-89: B, 70-79: C, 60-69: D, 0-59: F. The scores of the Diagnostic Exam (Exam 0) and the online Practice Quiz (see the "Attendance" section on page 2) will not count toward your final grade. There will be no additional exams or assignments.

Exam 1: September 15

Exam 2: October 10

Exam 3: November 3

Exam 4: December 1

Final Exam:

December 5, 10-11:30

## Calendar and Schedule of Lecture Topics for the Fall 2014 Semester

The Fall 2014 semester begins on August 18<sup>th</sup> and ends on December 1<sup>st</sup>.

There will be no class on September 1<sup>st</sup> and November 28<sup>th</sup>.

| <u>Topics</u>                                 | <u>Book Chapters</u> |
|---|----------------------|
| Introduction to cells                         | 1                    |
| Molecules in cells                            | 2                    |
| Proteins                                      | 4                    |
| The eukaryotic chromosomes                    | 5                    |
| DNA repair, recombination, and rearrangements | 6                    |
| Cell differentiation                          | 8                    |
| The evolution of genes and genomes            | 9                    |
| Membrane structure                            | 11                   |
| Membrane transport & neurobiology             | 12                   |
| Energy in biochemical reactions               | 3                    |
| Respiration and biosynthesis                  | 13-14                |
| Secretion                                     | 15                   |
| Cell communication                            | 16                   |
| The cytoskeleton                              | 17                   |
| The cell division cycle                       | 18                   |
| Apoptosis, tissue renewal, and cancer         | 20                   |

### Attendance and Academic Integrity

All faculty members are required to document students' academic activity at the beginning of each course. In order to comply, please take the **Practice Quiz** on Webcourses by August 27. *Failure to do so will result in a delay in the disbursement of your financial aid.*

Your instructor will not keep record of student attendance in class, but attending the lectures is strongly encouraged. The topics to be discussed in class may not be limited to those found in the textbook, and not all sections from the textbook chapters will be covered in class. *Only the topics covered in class will be included in the exams.* Please show respect for the instructor and your classmates by arriving on time to class and by staying until the lecture is over. As a courtesy to everyone in the classroom, please silence your phones and any noise-making devices during lectures and exams. All exams will be offered during regular class times, except for the final exam. If you arrive late on any exam day, you will be allowed to take the exam but you will be required to finish by the scheduled time. However, *once the first student has finished the exam and left the room, no other students will be allowed in to begin the exam.* You may not have any visible communication devices with you during exams. You may not use calculators that can store information. Please choose appropriately between right and left-handed desks.

As a UCF student, you are expected to follow the standards of conduct established in the *Golden Rule Student Handbook* ([goldenrule.sdes.ucf.edu](http://goldenrule.sdes.ucf.edu)). No disruptive behavior or disrespect to the instructor or to your classmates is tolerated. Promoting or engaging in academic dishonesty in any form (*cheating* or *enabling cheating*) will be penalized. Do not write the answer letters on the side of the exam pages. This will be considered enabling cheating and will carry an automatic four-points deduction from your exam score. Any violations to the standards of conduct may result in judicial action, which could result in expulsion from the University. At a minimum, violations of these rules may result in a record of the infraction being placed in your file.

You are responsible for knowing all course rules and policies. The instructor has the ultimate authority to determine the correct interpretation of the contents of this syllabus.