

## **BIO 2600 – Introduction to Cell Biology Syllabus**

**Fall 2018**

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(313) 577-3605

**Class Hours: Tues & Thurs – 2:30 PM to 3:45 PM in 0321 UCSC**

**Office Hours: Tuesdays after class in 0321 UCSC or by arranged appointment**

**Text: Alberts et al, *Essential Cell Biology*, 4<sup>th</sup> Edition, published by Garland Science (required)**

*(Note: Every effort will be made to provide the lecture slides in PowerPoint files on Canvas the night before class.)*

**Prerequisites:** Students should have completed BIO 1500 and BIO 1510. If you have not already successfully completed both courses with a grade of C- or better, or transferred their equivalent from another institution, you **must** drop BIO 2600. The department will not make exceptions.

**Course Description and Learning Outcomes:** This course introduces the student to the structure and function of the cell, which is the fundamental unit of life. It is designed for undergraduate students majoring in Biological Sciences or other science majors, including science education, pre-allied health and engineering. It is also intended for all students seeking introductory knowledge of cell biology. While the emphasis of the course will be on animal cells, aspects unique to prokaryotes or plants may also be discussed.

Upon completion of this course, the students should have learned:

- (1) the basic components of a eukaryotic cell and how to integrate the relationship between structure and function at the molecular and cellular levels.
- (2) how genetic information flows from DNA to proteins and how this is regulated at the levels of transcription and translation, which are important in understanding cell differentiation.
- (3) the structure and function of plasma membranes and the concept of cellular compartmentalization.
- (4) the general principles of intracellular and extracellular signalling.
- (5) the major components of the cytoskeleton and how their activities regulate various cellular structures and functions.
- (6) the regulation of the cell cycle and the importance of checkpoints to prevent disease.
- (7) how hypotheses are proposed and how experiments are designed and executed to test such hypotheses in the study of cell biology.

The information learned from this course should provide a solid knowledge base for future classes in physiology, genetics, metabolism and other advanced courses in biology.

**Course Schedule:**

Week	Lectures	Class Topic	Reading Assignment
1	Aug 30	Introduction	I recommend that you read Chapters 1-4 as a refresher to material to which I'll assume that you've been exposed.
2	Sept 4	DNA Replication	Chapter 6
	Sept 6	From DNA to Protein: How Cells Read the Genome	Chapter 7
3	Sept 11	From DNA to Protein: How Cells Read the Genome	Chapter 7
	Sept 13	Membrane Structure	Chapter 11
4	Sept 18	Membrane Structure	Chapter 11
	Sept 20	Transport Across Cell Membranes	Chapter 12
5	Sept 25	Transport Across Cell Membranes	Chapter 12
	Sept 27	How Cells Obtain Energy From Food	Chapter 13
<b>6</b>	<b>Oct 2</b>	<b>Exam 1</b>	<b>Ch. 6, 7, 11, 12</b>
	Oct 4	How Cells Obtain Energy From Food	Chapter 13
7	Oct 9	Energy Generation in Mitochondria	Chapter 14
	Oct 11	Energy Generation in Mitochondria	Chapter 14
8	Oct 16	Photosynthesis	Chapter 14
	Oct 18	Intracellular Compartments and Protein Transport	Chapter 15
9	Oct 23	Intracellular Compartments and Protein Transport	Chapter 15
	Oct 25	Intracellular Compartments and Protein Transport	Chapter 15
10	Oct 30	Cell Signalling	Chapter 16
	<b>Nov 1</b>	<b>Exam 2</b>	<b>Ch. 13, 14, 15</b>
11	Nov 6	Cell Signalling	Chapter 16
	Nov 8	Cell Signalling	Chapter 16
12	Nov 13	Cytoskeleton	Chapter 17
	Nov 15	Cytoskeleton	Chapter 17
13	Nov 20	The Cell Division Cycle	Chapter 18
	Nov 22	Thanksgiving holiday	
14	Nov 27	The Cell Division Cycle	Chapter 18
	Nov 29	The Cell Division Cycle	Chapter 18

15	Dec 4	Catch-up/Review	
	<b>Dec 6</b>	<b>Exam 3</b>	<b>Ch.16, 17, 18</b>
16	Dec 11	STUDY DAY	
	<b>Dec 13</b>	<b>CUMULATIVE FINAL EXAM</b>	<b>2:45 PM – 4:45 PM in 0321 UCSC</b>

(Note: The course schedule is subject to change if circumstances arise that would require such changes. Any changes will be announced to the whole class and posted on Canvas.)

**Dates to be aware of:**

Sept 12	Last day to add
Sept 12	Last day to <u>drop and receive tuition refund</u> . After this date, students who drop the course will receive WN (prior to Exam 1), WP, or WF on their transcripts. (WP = ≥70%)
Nov 11	Last day to withdraw. After this date, a <u>letter grade</u> will be issued.

**Reading Assignments:** The reading materials associated with each lecture are listed above.

**Class Web Site:** Go to Canvas to access the class web site: <https://canvas.wayne.edu/courses/81956> . This site has the syllabus and lecture slides. **CHECK this site OFTEN:** it is continuously updated with (1) new class materials and (2) announcements concerning the class, e.g., lecture materials and exams. **Lecture recordings will also be posted here via EchoCenter. YOU SHOULD ALSO REGULARLY CHECK YOUR WSU EMAIL ACCOUNT, WHICH IS THE PRIMARY WAY THAT I WILL COMMUNICATE WITH YOU.**

**Exams:** There will be **3 closed-book in-semester exams** and **1 closed-book comprehensive final exam**. Each exam will be derived from class lecture materials and the reading assignments. Thus, students are expected to know **both** sets of materials prior to each exam. **Each mid-term exam will be worth 100 points. The final exam is cumulative and will be worth 100 points. Your top 3 exam grades will be used to determine your grade.**

All exams will consist of multiple choice, true/false, matching and/or short answer questions. The room in which all exams will be held will be the same as the regular classroom. All you need is a few sharp (#2) pencils to fill in your name, ID number and answers on your **green Scantron, which you must provide yourself.**

**If you need to miss an exam, including the final exam, for any reason and have not missed any previous exams, you must use your drop for the exam that you will be missing. Make-up exams for a second missed exam will only be given under extremely extenuating, documented circumstances. Such circumstances will require notification of the instructor prior to the exam and must be followed with original, official signed documentation confirming your extenuating circumstance. Otherwise, missed exams will be scored as 0 points. **Headaches, common bouts of illness, waking up late, vacations, work, etc. are not extenuating circumstances.****

Exams will begin promptly. Students arriving late to an exam will **not** be given additional time to finish the exam. No students will be allowed to enter the exam room after a student has completed the exam and left the room.

**Grading Policy:** In general, exam grades will be calculated on a straight scale. However, the instructor may decide to make adjustments for certain exams to achieve a better exam average.

Final grades will be based on the three highest exam scores.

Four 100-point exams	+400
One dropped exam	-100
<b>Total possible points</b>	<b>300</b>

The final letter grade will be based on the following % of the total possible 350 points:

	A 92.5-100	A- 90.0-92.4
B+ 87.5-89.9	B 82.5-87.4	B- 80.0-82.4
C+ 77.5-79.9	C 72.5-77.9	C- 70.0-72.4
D+ 67.5-69.9	D 62.5-67.4	D- 60.0-62.4
	F 0-59.9	

### **Extra credit**

Slide set questions can be answered for extra credit. **Each question answered correctly will be worth 2 extra credit points. A wrong answer with reasoning will be worth 1 point.** Students will be randomly selected from the class list to answer these questions. All students will get an equal number of chances to answer questions during the semester. If you are not present in class the day that your name is selected, you forfeit one of your opportunities to answer a question. Answering a question after another student has answered wrong is not worth any points, but participation is still highly encouraged given that many of these questions or similar ones will be on the exams. **Also, some extra credit questions will likely appear on exams.**

**Academic Conduct:** The Wayne State University student code of conduct (<https://doso.wayne.edu/conduct/student>) specifically prohibits cheating and plagiarism. **Anyone caught cheating, plagiarizing, or assisting any student in such misconduct, will automatically receive a zero for the exam.** The practice of science is based on trust. In real-life terms, violation of such trust automatically leads to loss of research grants, medical licenses and careers. This should serve as a reminder that cheating and plagiarism have real-life consequences.

### **How to Do Well in Class:**

- (1) Attend the lectures and participate in the question portions of lecture.
- (2) Ask questions, especially if you do not understand the material under discussion.
- (3) Read the assigned material.
- (4) Take all required exams.
- (5) Do not cram for the exams and **utilize the study resources that I provide.** The course covers a lot of material and cramming will not help you gain a solid understanding of the material, which is necessary for the exams and for future courses.
- (6) Utilize the resources at the Academic Success Center (ASC) (see below).

The ASC, located at 1600 David Adamany Undergraduate Library, provides several services to aid students in successfully completing this course. These services, which are listed below, are free of charge to all students. Students are strongly encouraged to take advantage of these resources:

- (1) individual and group tutoring
- (2) study skills counseling and workshops

Visit [www.success.wayne.edu](http://www.success.wayne.edu) for more information.

**Students with Disabilities:** If you have a documented disability that requires accommodations, please register with the Student Disability Services (SDS), located at 1600 David Adamany Undergraduate Library (313-577-1851 or 313-577-3365; TTY--telecommunication device for hearing impaired students). I will be happy to meet with you during my office hours to discuss your needs, once you have your SDS academic accommodation letters. Please be aware that a delay in getting these letters may also delay the facilitation of your needed accommodations in a timely manner. The mission of the SDS at Wayne State University is to ensure that students with disabilities have equal educational opportunities.

**Religious Holiday Conflicts:** If you have a conflict with any of the scheduled class or exam times due to religious reasons, you must notify the instructor in writing within **the first two weeks of classes**. No accommodations will be made due to religious reasons after this time.

**Unexpected University Closures:** If the university is officially closed on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the university is announced by the following mechanisms:

1. the University Newline (313) 577-5345 \*
2. WSU Homepage ([www.wayne.edu](http://www.wayne.edu)) \*
3. WSU Pipeline ([www.pipeline.wayne.edu](http://www.pipeline.wayne.edu)) \*
4. WDET-FM (Public Radio 101.9)
5. by other local radio and television stations

\* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcasted by local radio and television stations.

**Finally, any specific issue not covered by this syllabus will be resolved using university policies.** Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the university code of conduct (<https://doso.wayne.edu/conduct/student>).

**Other:** Please turn off all cell phones during class and during exams. I am also happy to write letters of recommendations for students who earn a grade of A or A- and speak with me often enough during class hours or office hours that I know them relatively well.

**Changes to Syllabus:** I reserve the right and discretion to amend or change parts of this syllabus if circumstances arise that make doing so necessary. Any such changes will be distributed to the whole class in writing and posted on Canvas.