

BIO 2600 – Introduction to Cell Biology Syllabus

Fall 2017

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(313) 577-3605

Class Hours: Tues & Thurs – 11:30 AM to 12:45 AM at 0146 DRY

Office Hours: Tues & Thurs 10:15-11:15 (or by appointment to be arranged by e-mail at least 24 hours in advance) - 3111 Biological Sciences Building

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

(Note: Every effort will be made to provide the lecture slides in PowerPoint files on Blackboard 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) the structure and function of plasma membranes and the concept of cellular compartmentalization.
- (3) 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.
- (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 31	Introduction	I recommend you read Chapters 1-4 as a refresher to material to which I'll assume that you've been exposed
2	Sep 5	Membrane Structure	Chapter 11
	Sep 7	Membrane Structure	Chapter 11
3	Sep 12	How Cells Obtain Energy from Food	Chapter 13
	Sep 14	How Cells Obtain Energy from Food	Chapter 13
4	Sep 19	Energy Generation in Mitochondria	Chapter 14
	Sep 21	Energy Generation in Mitochondria	Chapter 14
5	Sep 26	Intracellular Compartments and Protein Transport	Chapter 15
	Sep 28	Exam 1	Chapters 11, 13, 14
6	Oct 3	Intracellular Compartments and Protein Transport	Chapter 15
	Oct 5	Cell Signalling	Chapter 16
7	Oct 10	Cell Signalling	Chapter 16
	Oct 12	Cytoskeleton	Chapter 17
8	Oct 17	Cytoskeleton	Chapter 17
	Oct 19	Transport Across Cell Membranes	Chapter 12
9	Oct 24	Exam 2	Chapters 15, 16, 17
	Oct 26	Transport Across Cell Membranes	Chapter 12
10	Oct 31	From DNA to Protein: How Cells Read the Genome	Chapter 7
	Nov 2	From DNA to Protein: How Cells Read the Genome	Chapter 7
11	Nov 7	DNA Replication, Repair and Recombination	Chapter 6
	Nov 9	Control of Gene Expression	Chapter 8
12	Nov 14	Exam 3	Chapters 12, 7, 6
	Nov 16	Control of Gene Expression	Chapter 8
13	Nov 21	The Cell Division Cycle	Chapter 18
	Nov 23	Thanksgiving (No classes)	
14	Nov 28	The Cell Division Cycle	Chapter 18

	Nov 30	Sexual Reproduction and the Power of Genetics	Chapter 19 (pp 645-666)
15	Dec 5	Cellular Communities: Tissues, Stem Cells and Cancer	Chapter 20
	Dec 7	Catch-up/Review	
16	Dec 12	STUDY DAY	
	Dec 19	FINAL EXAM	10:15 AM – 12:15 AM in 0146 DeRoy

(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 Blackboard.)

Dates to be aware of:

Sep 13 Last day to add

Sep 13 Last day to drop and receive tuition refund

Sep 27 Deadline to drop with no record of enrollment. After this date, students who drop the course will receive WP or WF on their transcripts. (WP = $\geq 70\%$)

Nov 12 Last day to withdraw. After this date, a letter grade will be issued.

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

Class Web Site: Go to Pipeline and Blackboard [<http://blackboard.wayne.edu/>] to access the class web site and click on the link "Fall 2017 Intr To Cell Biolgy Sec 902". 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. In addition, you can access Discussion Boards through this site that will allow you to post concepts and questions that you want clarified. The instructor will check the Discussion Boards often to reply to your posts. **Lecture recordings (audio only) 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 mid-term 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** and the mid-term exam with the lowest score will be dropped. In contrast, **the final exam will be worth 150 points** and cannot be dropped, i.e., **the final is mandatory.** **The final exam will also be cumulative.**

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 your name, ID number and answers on your answer sheet (red Scantron). **I will supply your Scantrons.**

Make-up exams will not be given, except under extremely extenuating, documented circumstances. Such circumstances will require notification of the instructor prior to the exam and must be followed with original 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. In the case of non-extenuating circumstances that cause you to miss an exam, you will have to use the missed exam as your dropped score.

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 leave and re-enter the classroom once an exam has begun. No students will be allowed to enter the exam room after a student has completed the exam and left the room.

Homework: Format and point totals still to be determined. I need to work out details with grader.

Grading Policy: In general, exam grades will be calculated on a straight scale. However, the instructor may decide to use a “curve” for certain exams to achieve a more normalized grade distribution.

Final grades will be based on the homework, two highest mid-term exams, and the final exam.

Three 100-point mid-term exams	+300
One 150-point final exam	+150
Homework	?
One dropped mid-term exam	-100
Total possible points	≥350

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	

Re-grading Policy: Requests for re-grades should be submitted no later than one week after the exam has been returned to you. Any exam that has been requested for a re-grade, with the exception of addition errors, may be re-graded in its entirety and result in either an increase or decrease in your grade.

Academic Conduct: The Wayne State University code of conduct (<https://doso.wayne.edu/conduct/studentcodeofconduct.pdf>) 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.
- (6) **Attend SI sessions.**
- (7) Utilize the peer mentors and other resources at the STEM Commons (see below) – **peer mentor schedules being confirmed.**

- The STEM Commons is located on the first floor of the Science and Engineering Library
- Open 9 a.m. to 9 p.m. Monday through Thursday, and 9 a.m. to 5 p.m. on Fridays
- There are group study spaces where you can study with friends, or invite others to join you by writing our course name on a signpost, and more.
- Find out more at clas.wayne.edu/STEMCommons .

(8) 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 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 Newsline (313) 577-5345 *
2. WSU Homepage (www.wayne.edu) *
3. WSU Pipeline (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 "Student Due Process".

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 Blackboard.