Bio2600: Introduction to Cell Biology Fall 2009

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TTH 11:30 – 12:45 pm
DeRoy 0146

Description and Objective: Cells are the fundamental unit of life. An in depth understanding of cells as living machines is important for all professional careers in the health sciences. This class will help you understand cells as living machines by looking closely at the structure and function of each of its major components. In many cases, the role of specific classes of proteins will be considered. Most topics cover all living cells - animal, plant and prokaryote - and, while the emphasis will be on animal cells, aspects unique to plant and prokaryotes will also be covered. The course is intended for Biology majors or other students in Allied Health professions seeking advanced knowledge of cell biology. It provides a solid foundation for most other biology, and neurobiology classes.

Learning objectives: This class covers A LOT of material; students claim in too much detail. With vocabulary you learn a lot of "what's" about a cell - names & pieces etc. A good start, and important, BUT we will also cover the "why, when, where and how" of cell structure *and* function. Cells are living machines - learn how it lives, by understanding the underlying principles and logic.

More formally, upon completion of this course, students should be able to:

(1) describe the basic structure of a eukaryotic cell and its different compartments (organelles)
(2) integrate the relationship between an organelle's structure and function within different cells
(3) model how molecules necessary for an organelle's function are routed to the correct organelle
(4) depict the flow of information within a cell and between cells
(5) predict outcomes when information flow within a cell or between cells is not correctly regulated
(6) reconstruct how a cell grows, duplicates, and dies
(7) create a dynamic model of a cell and its behaviors under different conditions.

Prerequisites: The Department of Biological Sciences is *strictly enforcing* the prerequisites for Bio2600. The prerequisites for this class are Bio1500 AND 1510 with a C- or better, or transfer of equivalent courses. If you do not meet these criteria, you **must** drop BIO2600. If you wish to discuss this policy contact a Biology departmental advisor, as I cannot alter the outcome. I do know that exceptions are rarely granted.

Text: The text is REQUIRED reading, and a critical part of your learning. Students are responsible for **ALL** material found in the assigned chapters even if NOT specifically covered in class. The chosen text is a national standard: **Essential Cell Biology,** Fifth Edition, by B. Alberts, et al., [ISBN-13: 978-0393680362]. The Fourth edition will suffice, so if necessary, find a cheap edition of this text and use it. The text can be purchased with access to on-line material that some students find useful, but is not strictly required.

You are ***strongly encouraged*** to do the questions/problems interspersed throughout each chapter. They are great for self-evaluation - discover what you understand, and even better what you do not understand, before an exam; besides, variations of these questions also appear on exams.

Office hours: I will be available in my office from 9:30-11:00 pm on Tuesdays and Thursdays before class. Come early - by 11 am I must finish. Typically, I arrive ~15 min early to class and once electronics are set I enjoy answering questions. E-mail is preferred for establishing a mutually convenient appointment. I do not answer long questions by e-mail, as the point is helping you get to an answer.

Class Web Site: Go to Academia and then to our Canvas web site (or bookmark Canvas site directly). The Canvas site is our major communication portal and includes most things you need for the class. CHECK this site OFTEN. You will also be able to download PDF files of class PowerPoint Presentations. These mostly contain the figures from the textbook so they are great for printing out before class and writing your own notes on them.

Grading Policy: A final grade will be calculated based on your performance in three (3) classroom exams, a cumulative Final exam and class clicker questions.

EXAM dates are indicated in the box at right. These dates will NOT change, although content may change to reflect pace of lecture material. Exams will consist of multiple-choice questions requiring answer sheets provided by instructor. For the final calculation, you will drop your lowest exam score, but each of the other two will be worth 100 points (i.e. 200 points towards your final score). Because you can drop an exam, NO Makeup Exam will be provided regardless of your reason for missing it. It is STRONGLY recommended that you take all three exams and then drop your lowest.

EXAM DATES:
Tuesday Sept. 24, 2019
Thursday Oct. 24, 2019
Thursday Nov.21, 2019

FINAL:
Tuesday Dec. 17, 2019

The **FINAL Exam** is a CUMULATIVE exam worth 150 points towards your final grade. It is scheduled by WSU as indicated in the box at right. A make-up exam will be set for any student that misses this exam as long as they can provide a **documented** reason (e.g. illness, or family emergency) for absence that is signed by a *non-family* professional person (e.g. doctor, police, funeral director etc.). Travel is NOT an acceptable reason for a make up. Without a note you will not write the exam and it will be counted as zero points. Be aware that the holiday closure begins soon after the final exam period, so it is possible that this make up exam may be arranged for mid- to late January.

Clickers: The iClickers are a classroom response system that provides an interactive component via anonymous polling. I typically begin classes asking questions about the previous lecture and/or chapter, AND questions on the chapter we are about to start. Questions also occur randomly throughout class. The primary purpose is to keep you engaged in the class and to think about the material. If you come to class prepared you can truly benefit from these questions, as they help you figure out what you know, and what you still need to work on.

ONLY questions answered using a clicker and seen by my base will be counted, ***and you must answer correctly to obtain one (1) point per question****.* One clicker per person. During the semester you have the potential to accumulate many clicker points (typically >120 questions are asked). ONLY at the end of the semester will they be used in a grade calculation, and be worth a total of 25 points towards your final grade. As a 'make-up' for missed class days, dead battery etc. as long as you answer 85% or more of the questions correctly, you will receive all 25 points. That is, if I ask 100 question and you get at least 85 of them correct you will get 25 points. If you only answered 65 of them correct, you will get 65/85*25 = 19 pts. Clearly, clicker points only have a small impact your final grade, but can have a big influence on your learning. So, chatting with your nearest physical neighbor is OK, but if you engage in the latest trend to use "what's app," group chats etc, I reserve the right to cancel clickers and NOT use these clicker points towards your final grade calculation.

93-100%	A
90-92	A-
86-89	B+
82-85	B
80-81	B-
76-79	C+
72-75	C
70-71	C-
67-69	D+
63-66	D
60-62	D-
59 or less	F

Summary of final grade calculation: At the end of the year, a letter grade is calculated based on total points accumulated. This number is then converted into a percentage and the percentages are then converted to a letter grade using the table shown at right.

Exam I	100 points	top two scores counted
Exam II	100 points	= 200 points
Exam III	100 points	
Final Exam		= 150 points
Class Clickers	=	25 points
TOTAL		= 375 points

Challenge option*:* Students have **one (1) week** after the return of a class Exam (but not Final exam) to challenge a grade; after this the grade stands "as is." Winning a challenge is a rare event. A challenge consists of a typed description of why your answer should be considered a BETTER answer than the one indicated, based on published material that you cite properly. [NOTE: MCAT study material is NOT considered valid material.] Semantics (word use) is an inherent part of examinations,

especially with a multiple-choice exam: so arguments based solely on semantics are not viewed favorably. You will submit your typed challenges to me in person (e.g. before or after a lecture) -- NO e-mail.

Attendance: Class attendance is mandatory for those days in which an exam is being held (see dates below): failure to write the exam results in a grade of zero (0). I ***strongly*** recommend that you attend all classes. While I make every attempt to post announcements on Canvas, you are responsible for all announcements even if they were only announced in class. ECHO360 has been activated and you gain access to these recordings through Canvas. If you have issues with access call the help desk, not the professor as I wont be bale to help you.

Timeliness: On exams dates do NOT arrive late!! You will not be allowed to take the exam if you arrive after the first student has finished the exam and left the room. Moreover, assuming you sit for the exam, no additional time will be provided --- **at 1:00 pm** all exams will be collected.

Individuals with Disabilities: If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. Once you have your accommodations in place, I will be glad to meet with you privately to discuss your special needs.

Religious Conflicts: If you have a conflict with any of the scheduled class or exam times due to religious reasons, you must notify me in writing by class time on **Sept 5, 2019**: look over ALL exam dates now. Every attempt will be made to find a mutually convenient solution, but at times, this may include using your ability to drop one exam. No make-up exams will be given unless you have notified me in writing by the above date. Contact your lab TA directly for conflicts with lab assignments.

ADD/DROP POLICY

I follow all university policies on adding or dropping class and I recommend that you contact Mrs. Hunter, Biology Advisor for help in this regard. Note Wayne State has changed the grading polic, and in particular there are no more "X" grades; you will receive an F if you fail to do the administration work required to drop the class. Per WSU regulations, if you drop the course, you will be assigned WP, WF or WN as appropriate. Any "I" given to a student will automatically revert to "F" if the work is not completed within one calendar year. There are no exceptions. For details see: http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm.

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 broadcast by local radio and television stations

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”.

<u>Tentative</u> Class Lecture Schedule

We may go faster or slower then this proposed schedule but the order of topic presentation will probably not change. Significant alterations in this schedule will be 1) announced in class, and 2) posted on Canvas. **<u>EXAM DATES WILL NOT CHANGE</u> –** but the content may change to reflect lecture progress.

Aug.	29	Administration and Introduction (Chp. 1)
Sept.	3	Protein Structure/Function (Chp. 4)
	5	Protein Structure/Function (Chp. 4)
	10	Membrane Properties (Lipids) (Chp. 11)
	12	Membrane transport (Chp. 12)
	17	Membrane transport (Chp. 12)
	19	Cellular Energy (Chp. 13)
	24	**EXAM 1 (Chp 1, 4, 11, 12)**
	26	Mitochondria/Chloroplasts (Chp. 14)
Oct.	1	Mitochondria/Chloroplasts (Chp. 14)
	3	Intracellular Compartments (Chp. 15)
	8	Intracellular Compartments (Chp. 15)
	10	Intracellular Compartments (Chp. 15)
	15	Cell Communication (Chp. 16)
	17	Cell Communication (Chp. 16)
	22	DNA/ Nucleus (Chp. 5)
	24	**Exam II (chp 13-16 inclusive)**
	29	DNA Replication & Repair (Chp. 6)
	31	RNA Transcription and Translation (Chp. 7)
Nov.	5	RNA Transcription and Translation (Chp. 7)
	7	Control of Gene Expression (Chp. 8)
	12	Cytoskeleton (Chp. 17)
	14	Cytoskeleton (Chp. 17)
	19	Cell Cycle/Cell Death (Chp. 18)
	21	**EXAM III [Chp 5-8, & 17]**
	26	Cell Cycle/Cell Death (Chp. 18)
	28 –	***Happy THANKSGIVING (No class***)
Dec.	3	Cell Communities: Tissues, Stem Cells, and Cancer (Chp 20)
	5	Cell Communities: Tissues, Stem Cells, and Cancer (Chp 20)

[All classes end Dec 9]

Last day to request a withdrawal from class:

Sun. Nov. 10, 2019

<u>Tuesday</u> DEC. 17 – **CUMULATIVE FINAL EXAM**
<u>10:15 am</u> to 12:15 pm in classroom NOTE time it begins and ends.