

Biology Today Bio 1030

Fall 2017

Instructor: Dr. E. M. Golenberg-1375, 3123 Bio. Sci. Bldg.

Class Hours: M,W, Fr 2:30-3:20 1107 Old Main

Office Hours: M, W 3:30-4:30, or by appointment

Text: Customized Chapters from *Essentials of Biology, Fifth Edition* by Mader, Windelspecht, 2018

Web Site: Use the Blackboard Site

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### Course description and objectives

As citizens in a modern world, we are constantly bombarded with news of major technological advances, or of significant degradations to our quality of life and to the environment in which we live. In this course, we will explore recent biological “press releases” of new advances or new insights that affect modern society ranging from environmental impacts to deciphering human history, to threats of new pandemics, to

In this course, we will present and discuss recent breakthroughs or announcements that are reported in scientific releases or in the popular press. We will then move back to studying the underlying scientific and biological principles behind such stories with the goal of gaining a deeper understanding of how biology is affecting us today, and how it will likely affect us in the future.

Through the process of this course, student will

1. Understand what is a scientific theory and what is the scientific method.
2. Develop skills to evaluate evidence-based research and to read and understand means of presentation of data in graphs, figures, and tables.
3. Appreciate how information is stored and utilized in a cell in the process of going from DNA to RNA to proteins.
4. Explain how information is passed on between cells in an individual and between generations through the process of mitosis and meiosis.
5. Appreciate how biological components interact to as systems to generate emergent properties.
6. Understand how biological information can change through mutations and biotechnology.
7. Link the emerging concepts of inheritance and mutation to the pervasive process of evolution.
8. Understand how the study of microorganisms impact biotechnology and human health.
9. Explore how interactions above the species level lead to ecological communities and how stress can alter such communities.
10. Develop a deeper understanding of how science informs the decisions of a society, and how science, such as biological engineering, creates opportunities that require informed citizens and policies.

## Course Prerequisites

The course is designed for non-science majors. There are no prerequisites for this course.

### Tentative Lecture Schedule

Week	Date	Topics	Readings
	Wed. August 30	Introduction	Chapter 1
	Fri., Sept. 1	Genetics in History	Blackboard Readings Chapter 8
	Mon., Sept. 4	<b>No Class</b>	
	Wed., Sept. 6		Chapter 8, 9
	Fri., Sept. 8		Chapter 9
	Mon., Sept. 11		Chapter 9, 10
	Wed., Sept. 13		Chapter 10
	Fri., Sept. 15	Neanderthals	Blackboard Readings Chapter 16
	Mon., Sept. 18		Chapter 16
	Wed., Sept. 20		Chapter 16
	Fri., Sept. 22	<b>Exam 1</b> (Rosh Hashanh- Get replacement)	
	Mon., Sept. 25	Human CRISPR-Cas9	Blackboard Readings Chapter 11
	Wed., Sept. 27		Chapter 11
	Fri., Sept. 29		Chapter 11, 12

	Mon., Oct. 2		Chapter 12
	Wed., Oct. 4		Chapter 12, 13
	Fr., Oct. 6		Chapter 13
	Mon., Oct. 9		Chapter 13
	Wed., Oct. 11	<b>Exam 2</b>	
	Fr., Oct. 13	Antibiotic resistance evolution, superbugs, and pandemics	Blackboard Readings Chapter 14
	Mon., Oct. 16		Chapter 14
	Wed., Oct. 18		Chapter 15
	Fr., Oct. 20		Chapter 15
	Mon., Oct. 23		Chapter 17
	Wed., Oct. 25		Chapter 17
	Fr., Oct. 27	Domesticating foxes, domesticating wheat	Blackboard Readings Chapter 32
	Mon., Oct. 30		Chapter 32
	Wed., Nov. 1	Cancer and Immunotherapy	Blackboard Readings Chapter 26
	Fr., Nov. 3		Chapter 26

	Mon., Nov. 6		Chapter 26
	Wed., Nov. 8	<b>Exam 3</b>	
	Fr., Nov. 10	Yellowstone and wolves	Blackboard Readings Chapter 30
	Mon., Nov. 13		Chapter 30
	Wed., Nov. 15		Chapter 30
	Fr., Nov. 17		Chapter 31
	Mon., Nov. 20		Chapter 31
	Wed., Nov. 22	<b>No Class</b>	
	Fr., Nov. 24	<b>No Class</b>	
	Mon., Nov. 27	Great Lakes Environment	Blackboard Readings
	Wed., Nov. 29	Special Topic- students	
	Fr., Dec. 1	Special Topic- students	
	Mon., Dec. 4	Special Topic- students	
	Wed., Dec. 6	Special Topic- students	
	Fr., Dec. 8	<b>Exam 4</b>	
	Mon., Dec. 11	<b>Make Up Discussions</b>	

	Wed., Dec. 13	<b>Final Exam 2:45-4:45</b>	
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**Lecture topics:** The above schedule is tentative in the sense that we may take more or less time on a given topic depending on how well students who attend the lecture appear to understand. While I have apportioned 2 class meetings for most chapters, some may require less time. In that case, we will continue with the next chapter that is related to the section/topic at hand. You must come to class if you wish to keep up with the course material and to know where we are. Lectures will not be recorded. You are expected to attend and participate in all class meetings.

**Tests:** Please come prepared for the examinations. **You may not use a cell phone in any capacity during an exam. You may not borrow calculators in the middle of an exam.**

Each exam will use both multiple choice and open answer question formats. Each midterm exam will be worth 150 points. The cumulative final exam will be worth 200 points.

Exams will not be rescheduled for individual students who request a change in time due to personal or professional conflicts or any unforeseen reason, the single exception being a university-recognized religious conflict or a university varsity team event in which the student is actively participating (is on the varsity team). These conflicts must be brought in writing by the end of the second week of classes.

You may not drop any midterm exam. However, the score of your lowest exam (including missed exams) will be replaced by the average of all four original midterm exams scores. You may not drop the final.

**Quizzes:** There will be an unspecified number of unannounced quizzes administered during the semester. The quizzes may cover material that we have already discussed in class, or material that we will discuss that day and that you were responsible for reading. Come prepared. I will take the average percentage from all quizzes and multiply this by 200. In other words, the final weight of the quizzes together throughout the semester will be 200 points.

**Regrading:** Errors do occur in grading exams. If you feel that such an error has occurred on your exam, please bring it in for regrading. On an accompanying piece of paper, write which question you wish to be regraded and explain explicitly why you believe it is misgraded. However, we will only regrade exams up to two weeks from the time that we return them to the class.

**Grading:** You will have four intermediate examinations during the semester, each covering the material from the lectures preceding the exam. Each exam will have a possible 150 points. The final examination will deal with all of the material covered in the course. It will have a maximum score of 200 points. The grades on each exam will be standardized against the second highest grade in the class. All scores will be adjusted by adding the number of points necessary for the second highest class score to equal 150 (or 200 for the final). For example, if the second highest score is 133, then all scores will be adjusted by

adding 17 points to the raw score. If two people tie for the top score on any exam, that score will be used to standardize the class grades. The final quiz grades will be adjusted in a similar way. The second highest cumulative quiz score will be adjusted to 100%. Thus students will have a total possible score of 1000 points, 600 midterm, 200 final exam, and 200 quizzes.

*You must understand that coming prepared for class, reading the material before class, is **essential**.*

**The total point distribution is as follows:**

Component Possible Points  
Lecture Exams 4 X 150 = 600  
Final Exam 200  
Quiz grade 200  
Total Course Grade 1000

The final letter grade will be determined by a straight scale as follows:

Total Points Final Grade

93%- 100% A  
90%- <93% A-  
87%- <90% B+  
83%- <87% B  
80%- <83% B-  
77%- <80% C+  
73%- <77% C  
70%- <73% C-  
67%- <70% D+  
63%- <67% D  
60%- <63% D-  
<60% F.

**Withdrawal Policy** You may withdraw from the class and receive your tuition back through September 13. From September 14 through September 27, you may withdraw and the course will not appear on your transcript, but you will be liable for tuition. After that time until November 12 you may withdraw with signature through Academics and receive a grade of WF or WP (withdrawal failing, withdrawal passing). Your grade (WP or WF) will be determined by your test grade or grades at the time. The quiz grade up until that time will not be used to calculate your standing grade. Note that if you did not take an exam that was given up until the time of withdrawal, your score for that exam is 0. The WP grade will be given for grades of 60% and higher. The WF grade will be given for grades of less than 60%.

**Students with disabilities:** If you have a physical or mental impairment that may interfere with your ability to successfully complete the requirements for this course, you are invited to contact Educational Accessibility Services (577-1851) to discuss appropriate accommodations on a confidential basis.

**CHEATING POLICY:** A student found to be cheating during an exam or quiz (using a “cheat sheet”, looking at another’s paper, allowing another to look at yours, or answering questions

in another's name) will receive a zero for that test with no opportunity to drop or replace that score. A second episode of cheating will result in a grade of F for the course and may also result in initiation of university disciplinary action. Altering an exam after it has been graded and then turning it back in for a regrade will similarly result in a grade of F for the course and also may result in initiation of university disciplinary action.

**ADD/DROP/INCOMPLETE POLICY:** Add forms will not be signed after the second week of class. Please note that “**incomplete**” grades will not be issued to students in poor standing who are seeking an alternative to a late drop. See above for new withdrawal policy.

**N.B.** Some material or emphases will be given in lecture that are not in your book. You will be responsible for this material in addition to the material in your book. Also, please note that I will be happy to help students understand the material that they are having trouble with during office hours. However, I do not view office hours as a substitute for lectures.