

# Biology and the Citizen

**Biology 1010**

**Spring 2020**

**Meeting:** MWF, 11:30 – 12:30, LSB 133

**Instructor:** Ms. Lauren Lansdowne, Grantsville High, 48 llansdowne@tooeleschools.org

**Office Hours:** By appointment

## **Course Objectives:**

- ◆ Introduce major concepts of biology, with a special focus on biochemistry, cell biology, genetics, evolution, and ecology
- ◆ Learn to critically read and intelligently discuss articles about biology
- ◆ Improve scientific reasoning skills
- ◆ Understand the nature of science and the scientific process
- ◆ Learn that there are many open questions in biology
- ◆ Illuminate the interface between biology and society

## **IDEA Objectives** (you'll use these to evaluate the course):

- ◆ Gain factual knowledge (terminology, classifications, methods, trends)
- ◆ Learn fundamental principles, generalizations, or theories
- ◆ Learn to apply course materials (to improve rational thinking, problem solving and decisions)

## **Required Materials:**

**Text:** Concepts in Biology (2016) Fowler, Roush, and Wise *Openstax* ISBN-10: 1-947172-03-4  
<https://openstax.org/details/books/concepts-biology>

This is a free, open educational resource text published by Openstax. Use the link above to gain access to the text. There will be frequent assigned readings and associated reading quizzes, so getting access to the text early in the semester is important. There is also an app through OpenStax that allows you to access the textbook on your mobile device.

**Course Structure:** Time in class will be spent on a mix of lectures, listening to or viewing audio and video clips, answering clicker questions, and participating in small-group discussion of articles about biology. We will read 12 articles from a variety of sources that cover a range of biology topics. Each article will be available on Canvas no later than 10 pm, Monday.. Please have each paper available in class when the paper is discussed.

Weekly reading quizzes will consist of a varying number of multiple choice and true/false questions about the assigned article and readings from the text. Reading quizzes will be available in Canvas no later than 5 pm, Wednesday, the week the quiz is due. Early submission of quizzes is encouraged; late submissions will not be accepted. All reading quizzes are due 11:15 am on Fridays. Working in groups to complete the quizzes is fine, particularly if group members work together to answer each question. However, I'll consider it a violation of the USU Academic Honesty/Integrity Policy if answers to quiz questions are posted for sharing with the entire class or sets of groups.

The purpose of weaving papers and discussions into Biology 1010 is for you to learn what's happening in biology today, to see how biology is actually done, to learn that there are many open questions and disagreements about biology, and to provide an opportunity to talk about biology with your peers. The papers are independent of the lecture topics, so please don't expect a close tie between what's being

covered in lecture and the focus of a particular paper. During in-class discussions, you will form groups of no more than four students to discuss a set of questions about each paper. I will call on groups to share their answers with the class. Please be prepared. You must be in class to receive credit for discussions.

**Grading:** Grading is based on your reading quizzes, your score on exam 4, and the two highest scores of the first three exams. You can choose to miss one of the first three exams, but you must complete exam 4. The weight of each point-awarding activity is shown below.

Quizzes **	General Participation Points	Canvas Discussion Points	Exam 1*	Exam 2*	Exam 3*	Exam 4	Total Points
36%	5%	5%	18%	18%	18%	18%	100%

\*Lowest exam score will be dropped.

\*\*Two lowest quizzes will be dropped.

There is NO comprehensive final, but you MUST take the fourth exam. If miss one exam for any reason, realize that you cannot miss any other exam. Points may be added to individual exams if warranted by the class average.

The grading scale shown below is the most stringent that will be used. Scores are calculated to the nearest 0.1% and are not rounded to whole point values. Be aware that in a large class like this one, some students will be very close to a grade cutoff. If this cutoff is lowered, it creates another group of students close the new cutoff. Therefore, grades will not be changed because a score happens to be close to a cutoff.

	<u>Grade</u>	<u>Percentage</u>	<u>Grade</u>	<u>Percentage</u>
<b>Exams:</b> Exams will consist of a mix of multiple-choice and true/false questions. All exams will be <u>given in Canvas and will be timed</u> .	A	92.00- 100%	C	72.00 - < 78.00%
	A-	90.00 - < 91.00%	C-	70.00 - <72.00%
	B+	88.00 - < 89.00%	D+	68.00 - <70.00%
	B	82.00 - < 88.00 %	D	60.00 – 68.00%
	B-	80.00 - <82.00%	F	< 60.00%
	C+	78.00 - <80.00%		

Many exam questions will ask for simple recall of information, but some will demand higher level reasoning. You will have practice on all of these question types through participation questions posed in class.

Exams will be based on material covered in lecture, including participation questions, and on the major points of the articles/papers you'll read and discuss in class and on Canvas. Exam material will come only from what's actually been covered at the time of the exam, regardless of where we are in the lecture schedule. Answers to questions can be disputed up to 72 hours after exam scores are released in Canvas. After that time, the grading of any question stands.

The score for exam 4 will count for all students, but for exams 1 – 3, only the top 2 scores will count. You can choose to miss any of the first three exams, but not exam 4. Everyone must complete exam 4.

**Extra Credit:** Individual extra credit opportunities will NOT be offered. Please don't ask, particularly at the end of semester with an aim to increase your grade. However, at least two extra credit opportunities open to all students in the class will be offered during the semester.

**Lecture Recordings:** Lectures will be recorded and posted on Canvas. Be aware that lecture recordings are intended to enrich, not replace, lecture attendance, and that it is always possible that technical problems may prevent the recording of some lectures.

**PowerPoints + Nearpod + Discussions = Study Guide:** Study guides for this course will be in word format. To get the extra credit points offered, it needs to be uploaded into Canvas **PRIOR** to the exam. Separate study guides will not be provided.

**Canvas Web Page:** You will use the course Canvas web page frequently. It contains all slides used in lecture, assigned readings, online quizzes, lecture recordings, your scores, and announcements about the course. Realize that the "Total" grade book column in Canvas will be misleading until scores are adjusted at the very end of the semester. This is because participation scores will require adjustment and the rule of dropping the lowest exam score will not become active until exam 3 scores are available.

**My Expectations of You:** I assume that you're bright, motivated, and eager to learn new things, including biology. No prior knowledge of biology is presumed. I further assume that Utah State University is a

quality institution of higher education. I will teach the course at a level consistent with these assumptions. I know that this is a general education course, but I do not equate general education with no education.

**Classroom Etiquette:** I expect that classroom behavior will not interfere with anyone's learning or with my ability to provide a quality learning environment. Talking during lectures or gathering a group around your cell phone are examples of poor classroom behavior that will not be tolerated. On the other side of the coin are the things I expect to see. One important point is that I want everyone to participate in their team for all in-class group activities.

**Advice:** Attend all classes, have copies of the PowerPoint slides available during class, take good notes, carefully read the assigned papers, participate actively in group activities, listen to and watch carefully any audio and video presentations shown in class, and don't miss quiz deadlines. It's too late if you only begin studying the night before an exam. Be sure to see me if you have any questions after making an honest effort to understand the material. Please don't fall into the trap of waiting until the last weeks of class before asking if there's anything you can do to improve your course score. At this point, it's too late. In contrast, there's usually a lot that can be done if problems are addressed early in the semester.

**Dropping, adding or changing to P/D+/D/F:** Please consult the spring 2020 Registration Calendar (<http://catalog.usu.edu/content.php?catoid=12&navoid=11820>) for a list of critical dates.

**Academic Honesty/Integrity:** The USU Academic Honesty/Integrity Policy will be followed in this course. Details are at <http://catalog.usu.edu/content.php?catoid=12&navoid=3140>. Key points of this policy for Biology 1010 include:

Students have a responsibility to promote academic integrity at the University by not participating in or facilitating others' participation in any act of academic dishonesty and by reporting all violations or suspected violations of the Academic Integrity Standard to their instructors.

**The Honor Pledge**—To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge: "I pledge, on my honor, to conduct myself with the foremost level of academic integrity."

Violations of the Academic Integrity Standard (academic violations) include, but are not limited to:

**Cheating:** (1) using or attempting to use or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity, including working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually"; (2) depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work; (4) acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission; (5) continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity; (6) submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or (7) engaging in any form of research fraud.

**Students with Disabilities:** Reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation within the program. If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center (DRC, ph. 797-2444), preferably during the first week of the course. Any request for special consideration relating to attendance, pedagogy, taking of examinations, etc., must be discussed with and approved by the instructor. In cooperation with the DRC, course materials can be provided in alternative format, large print, audio, diskette, or Braille.

## Biology and the Citizen (Biol. 1010) Target<sup>1</sup>Schedule

Meeting			Topic	Chapter <sup>2</sup>	Social Issue	Exams <sub>5</sub>
M	1/13		Introduction to Course; Nature of Science	1	The Politics of Science	
W	1/15		Social Issues and Field Science	1		
F	1/17		Inorganic Chemistry and Biomolecules	2	Vegans? Vegetarians?	
M	1/20		<b>MLK Day!</b>			
W	1/22		Inorganic Chemistry and Biomolecules	2&3	Biological Enzymes	
F	1/24		Biomolecules	3		
T	1/28		Biomolecules	3		
TH	1/30		Cell Structure, Function and Support	4	Anti Aging, is it a gimmick?	
M	2/3		Cell Structure, Function, and Support	33, 5		
W	2/5		Cell Structure, Function, and Support	6&9		
F	2/7		Photosynthesis and Cellular Respiration	7	Carbon Sequestration	<b>Exam 1 Opens</b>
T	2/11		Photosynthesis and Cellular Respiration	8		
TH	2/13		Viruses, Bacteria, and Prions	21	Anti-Vaxxers	
T	2/18		Viruses, Bacteria, and Prions	22		<b>Exam 1 Closes</b>
TH	2/20		Mitosis and the Cell Cycle	10		
M	2/24		Mitosis and The Cell Cycle	10		
W	2/26		Biotechnology & Advances in Research	17		
F	2/28		<b>No School. Teacher Work Day.</b>	-----		
M	3/2		Cancer and Biotechnology	17	Cancer Ethics	
TH	3/5		Meiosis and Reproduction Strategies	11, 43		
M	3/9		Meiosis and Reproduction Strategies	11,43	Women's Rights	
W	3/11		Overview of Body Systems	34-42		
F	3/13		DNA Replication	15	CRISPR- What is it?	
M	3/16		<b>No School. Teacher Work Day.</b>	-----		<b>Exam 2 Opens</b>
W	3/18		DNA Replication	15		
F	3/20		Transcription, Translation and Gene Regulation	16	Gene Therapy	
T	3/24		Transcription Translation and Gene Regulation	16		<b>Exam 2 Closes</b>
TH	3/26		Transcription, Translation, and Gene Regulation	15 & 16		
M	3/30		Mendelian Genetics	12	Common Misconceptions	
W	4/1		Non-Mendelian Genetics	13		
F	4/3		Origin and the History of Life	18&20	Evolution in Schools	
M-F	4/6-4/10		<b>Spring Break</b>	-----		
T	4/14		Diversity and Evolution	19&20		<b>Exam 3 Opens</b>
TH	4/16		Diversity and Evolution	23-26		
M	4/20		Introduction to Community and Ecosystems	28&29, 44		
W	4/22		Importance of Biodiversity and Human Populations	45&46	Wildlife Populations in Decline	<b>Exam 3 Closes</b>
F	4/24		Global Climate Change and Human Impacts	47		
T	4/28		Global Climate Change and Human Impacts	47	The Legitimacy of Climate Science	<b>Exam 4 Opens</b>
TH	4/30		Review			
M	5/4		Review/Finals Week			
W	5/8		Review/Finals Week			
T	5/12		Review/Finals Week	-----		
TH	5/14		<b>Finals</b>	-----		
M	5/18		<b>Finals</b>	-----		<b>Exam 4 Closes</b>

<sup>1</sup>The lecture schedule is a target, so please don't be surprised or upset if some adjustments need to be made during the course of the semester. In contrast to the flexible lecture schedule, the dates for all exams, quizzes and readings are firm and as shown in the lecture schedule. Exams will only cover what has actually been covered in lecture up to the time of the exam, not necessarily what's shown on the target lecture schedule.

<sup>2</sup>Detailed readings (specific page ranges) from each chapter will be posted to Canvas as the semester unfolds.

5. All exams will be taken online via Canvas. The test is timed; you will be allowed 70 minutes for each test.