



## Assessment Record

Program: Biology (BIO 101)

Assessment period: Fall 2020 – Summer 2021

### Program or Department Mission:

Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters.

## Course Student Learning Outcomes & Assessment Plan

### Biology 101 Course Level Assessment Rubric:

#### Course Level Student Learning Outcomes

1. Students will recognize how the scientific method is utilized to explore biological processes.
2. Students will have the ability to recognize biological processes at the molecular, cellular and organismal levels.
3. Students will demonstrate an ability to identify basic genetic and molecular biology principles.

Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence			Use of Results
1. Recognize how the scientific method is utilized to	Student learning outcomes were assessed by using a 15 question	70% or > successful 69% or < unsuccessful	Fall 2020	Jefferson	# students tested = 38 # correct = 93 % correct = 82%	<b><u>Observations/Changes Based on Previous Cycle (19/20)</u></b>
				Shelby	# students tested = 38 # correct = 93	

<p>explore biological processes</p>	<p>standardized multiple choice examination at the end of the semester. A total of three questions (Q-1 – Q-3) were used to assess SLO-1.</p> <p><a href="#">See Appendix A: BIO 101 SLO Assessment</a></p>	<p>The percent is based upon the average of correctly answered questions related to SLO 1.</p>	<table border="1" data-bbox="884 139 1629 626"> <tr> <td></td> <td></td> <td>% correct =82%</td> </tr> <tr> <td></td> <td>Pell City</td> <td># students tested = 46 # correct = 110 % correct = 80%</td> </tr> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students tested = 58 # correct = 144 % correct = 83%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 80 # correct = 212 % correct = 88%</td> </tr> <tr> <td></td> <td>Pell City</td> <td># students tested =41 # correct =101 % correct = 82%</td> </tr> </table> <p><b>Total Students Tested = 301</b> <b>Total Annual Success Rate: 84%</b></p>			% correct =82%		Pell City	# students tested = 46 # correct = 110 % correct = 80%	Spring 2021	Jefferson	# students tested = 58 # correct = 144 % correct = 83%		Shelby	# students tested = 80 # correct = 212 % correct = 88%		Pell City	# students tested =41 # correct =101 % correct = 82%	<p>The students tested did meet the requirements for success for SLO 1.</p> <p>The success rate for SLO 1 is 84% which is an increase from last year (78% mastery of SLO 1).</p> <p>Due to the pandemic, all sections were offered online, therefore students had access to course materials on the LMS throughout the semester. This seemed to lead to improved outcomes.</p> <p><b><u>Observations/Changes Based on Current Cycle (20/21)</u></b></p> <p>Deeper analysis of the SLO assessment showed that students struggled to most on SLO 1 Q1 (Scientific method). <a href="#">Instructors will work to include activities that allow students to explore the use of the</a></p>
		% correct =82%																	
	Pell City	# students tested = 46 # correct = 110 % correct = 80%																	
Spring 2021	Jefferson	# students tested = 58 # correct = 144 % correct = 83%																	
	Shelby	# students tested = 80 # correct = 212 % correct = 88%																	
	Pell City	# students tested =41 # correct =101 % correct = 82%																	

[scientific method \(See SLO 1 evidence\).](#)

**Observations/Changes Based on Previous Cycle (19/20)**

The students tested did meet the requirements for success for SLO 2.

The success rate for SLO 2 is 90% which is a significantly higher than last year (78% SLO mastery).

With the transition to all BIO 101 sections being offered online, all students were provided access to online lectures and study aids throughout the semester. This appears to have helped students to master these challenging concepts.

**Observations/Changes Based on Current Cycle (20/21)**

A deeper analysis of the students SLO assessment showed

Fall 2020	Jefferson	# students tested = 38 # correct = 241 % correct = 91%
	Shelby	# students tested = 38 # correct = 236 % correct = 89%
	Pell City	# students tested = 46 # correct = 283 % correct = 88%
Spring 2021	Jefferson	# students tested = 58 # correct = 346 % correct = 85%
	Shelby	# students tested = 80 # correct = 515 % correct = 92%
	Pell City	# students tested = 41 # correct = 267 % correct = 93%

**Total Students Tested = 301**  
**Total Annual Success Rate: 90%**

2. Recognize biological processes at the molecular, cellular and organismal levels

Student learning outcomes were assessed by using a 15 question standardized multiple choice examination at the end of the semester. A total of seven questions (Q4-Q10) were used to assess SLO-2.

[See Appendix A: BIO 101 SLO Assessment](#)

70% or > successful  
69% or < unsuccessful  
The percent is based upon the average of correctly answered questions related to SLO 2.

						<p>that student struggled the most to mast SLO 2 Q9 (plant cells vs animal cells).  <a href="#">Instructors will provide students with activities designed to differentiate between various cells types.</a></p>																		
<p>3. Identify basic anatomical structures and the correlating physiology of human systems.</p>	<p>Student learning outcomes were assessed by using a 15 question standardized multiple choice examination at the end of the semester. A total of five questions (Q11-Q15) were used to assess SLO-3.</p> <p><a href="#">See Appendix A: BIO 101 SLO Assessment</a></p>	<p>70% or &gt; successful  69% or &lt; unsuccessful  The percent is based upon the average of correctly answered questions related to SLO 3.</p>	<table border="1"> <tr> <td data-bbox="869 456 1052 565">Fall 2020</td> <td data-bbox="1052 456 1234 565">Jefferson</td> <td data-bbox="1234 456 1629 565"># students tested = 38 # correct = 161 % correct = 85%</td> </tr> <tr> <td data-bbox="869 565 1052 673"></td> <td data-bbox="1052 565 1234 673">Shelby</td> <td data-bbox="1234 565 1629 673"># students tested = 38 # correct = 155 % correct = 82%</td> </tr> <tr> <td data-bbox="869 673 1052 782"></td> <td data-bbox="1052 673 1234 782">Pell City</td> <td data-bbox="1234 673 1629 782"># students tested = 46 # correct = 201 % correct = 87%</td> </tr> <tr> <td data-bbox="869 782 1052 891">Spring 2021</td> <td data-bbox="1052 782 1234 891">Jefferson</td> <td data-bbox="1234 782 1629 891"># students tested = 58 # correct = 241 % correct = 83%</td> </tr> <tr> <td data-bbox="869 891 1052 1000"></td> <td data-bbox="1052 891 1234 1000">Shelby</td> <td data-bbox="1234 891 1629 1000"># students tested = 80 # correct = 325 % correct = 81%</td> </tr> <tr> <td data-bbox="869 1000 1052 1109"></td> <td data-bbox="1052 1000 1234 1109">Pell City</td> <td data-bbox="1234 1000 1629 1109"># students tested = 41 # correct = 177 % correct = 86%</td> </tr> </table> <p><b>Total Students Tested = 301</b>  <b>Total Annual Success Rate: 84%</b></p>			Fall 2020	Jefferson	# students tested = 38 # correct = 161 % correct = 85%		Shelby	# students tested = 38 # correct = 155 % correct = 82%		Pell City	# students tested = 46 # correct = 201 % correct = 87%	Spring 2021	Jefferson	# students tested = 58 # correct = 241 % correct = 83%		Shelby	# students tested = 80 # correct = 325 % correct = 81%		Pell City	# students tested = 41 # correct = 177 % correct = 86%	<p><b><u>Observations/Changes Based on Previous Cycle (19/20)</u></b></p> <p>The students tested did meet the requirements for success for SLO 3.</p> <p>The success rate for SLO 3 is 84%, which is a significant increase from 19/20 where the success rate was 64%. It is quite possible that with the transition to online students took advantage of the increased access to digital dissections and other materials provided to master SLO 3.</p> <p><b><u>Observations/Changes Based on Current Cycle (20/21)</u></b></p> <p>It should be noted that representative Biology</p>
Fall 2020	Jefferson	# students tested = 38 # correct = 161 % correct = 85%																						
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				faculty from all ACCS met this year to reassess the learning objectives and course competencies for BIO 101. It was determined that competencies related to human anatomy and physiology would better fit in BIO 102 as part of the exploration of different organisms. This would allow for more time to focus on basic biological concepts in BIO 101. <a href="#">A new BIO 101 SLO assessment will be created with the input of various faculty in Biology department. It will be utilized starting 20/21.</a>
<b>Plan submission date:</b> September 23, 2022			<b>Submitted by:</b> Crystal Wheeler	

Appendix A: BIO 101 SLO Assessment

**SLO1**

1. The correct sequence of the scientific method is
  - a. observation, questions, hypothesis, predictions, tests
  - b. questions, observations, hypothesis, predictions, tests
  - c. observations, hypothesis, questions, predictions, tests
  - d. observations, predictions, hypotheses, questions, tests
  - e. observations, predictions, questions, tests, hypotheses
  
2. In order to arrive at a solution to a problem, a scientist usually conducts one or more
  - a. Laws
  - b. Theories
  - c. Experiments
  - d. Principles
  
3. As a result of experimentation
  - a. More hypothesis may be developed
  - b. More questions may be asked
  - c. A new biological principle could emerge
  - d. Entire theories could be modified or discarded
  - e. All of the above

## SLO2

4. The main difference between prokaryotes and eukaryotes is that
  - a. prokaryotes lack a nucleus, eukaryotes have a nucleus
  - b. eukaryotes lack a nucleus, prokaryotes have a nucleus
  - c. prokaryotes have cell walls, eukaryotes do not have cell walls
  - d. eukaryotes have a cell wall, prokaryotes do not have cell walls
  - e. none of the above
  
5. The building blocks of proteins are called
  - a. amino acids
  - b. nucleotides
  - c. fatty acids
  - d. triglycerides
  - e. peptides
  
6. The Cell Theory states that
  - a. Cells arise from matter
  - b. Cells are small
  - c. Cells are of different types
  - d. Cells are the unit of life
  
7. "Double helix" describes the structure of
  - a. polysaccharides
  - b. fats
  - c. fibrous proteins
  - d. DNA
  - e. RNA
  
8. The first phase of cellular respiration is
  - a. the citric acid cycle.
  - b. glycolysis.

- c. the electron transport system.
- d. fermentation.

9. Plant cells differ from animal cells in that they have
- a. cell walls
  - b. nuclei
  - c. chloroplasts
  - d. a & b
  - e. a & c
10. "Phospholipid bilayer" describes the structure of
- a. ribosomes
  - b. mitochondria
  - c. chloroplast
  - d. smooth endoplasmic reticulum
  - e. plasma membrane

### **SLO 3**

11. High blood pressure is also known as
- a. anemia
  - b. hypertonic
  - c. hypotonic
  - d. hypertension
12. Food is moved along the length of the digestive system by
- a. active transport
  - b. peristalsis
  - c. diffusion
  - d. osmosis



13. Where in a woman's reproductive tract does fertilization most often take place
- In the ovary
  - In the fallopian tube
  - In the uterus
  - In the urethra
  - In the abdominal cavity
14. Any disease-causing agent ,either virus or bacteria, is a(n):
- Antibody
  - Vaccine
  - Thrombin
  - Allergen
  - Pathogen
15. During respiration, the diaphragm contracts to increase the volume of the thoracic (chest) cavity. This allows the pressure to drop and leads to \_\_\_\_\_
- Inhalation
  - Exhalation
  - The pause between breaths
  - Exhaustion

Evidence for SLO 1 Students complete a module and homework assignment that walks them through the scientific method.

The screenshot displays a Blackboard course interface for 'Introduction to Biology I'. The left sidebar contains a navigation menu with categories: 'Introduction to Biology I', 'Course Introduction', 'Syllabus - READ CAREFULLY', 'Course Calendar', 'Course Communication', and 'Course Material'. The main content area is titled 'Connect Virtual Labs' and features a sub-menu with 'Build Content', 'Assessments', 'Tools', and 'Partner Content'. Below this, a list of virtual lab modules is shown, each with a folder icon and a title:

- A Virtual Labs Tutorial**: Virtual Labs, Due Date: August 30, 2020 11:59:00 PM CDT
- Lab Safety**: Availability: Item is hidden from students. It was last available on Aug 30, 2020 11:59 PM.
- Scientific Method**: Availability: Item is hidden from students. It was last available on Sep 6, 2020 11:59 PM.
- Metric Measurement**: Availability: Item is hidden from students. It was last available on Sep 6, 2020 11:59 PM.
- Diffusion**: Availability: Item is hidden from students. It was last available on Sep 13, 2020 11:59 PM.
- Osmosis**: Availability: Item is hidden from students. It was last available on Sep 13, 2020 11:59 PM.



Introduction to Biology I

BIO101 - Introduction to Biology I

Blackboard Help

Start Here

Course Introduction

Syllabus - READ CAREFULLY

Course Calendar

Course Communication

Scientific Method

Build Content

Assessments

Tools

Partner Content



**Applying the Scientific Method - Pillbug Preference**

Virtual Labs

*Due Date: September 6, 2020 11:59:00 PM CDT*



**Scientific Method Lab Homework**

homework

*Due Date: September 6, 2020 11:59:00 PM CDT*

SLO 2 Evidence: Example of an online discussion board where students are engaged in an online discussion designed to reinforce the structure of the cell

Discussions are a good way to encourage students to think critically about your coursework and interact with each others' ideas. You can create discussions around individual course lessons or

Create Forum

FORUM	DESCRIPTION	TOTAL POSTS
<input type="checkbox"/> <a href="#">Discussion Topic 1 - Introduction</a>		60
<input type="checkbox"/> <a href="#">Discussion Topic 2 - Life</a>	<p>As far as we know, we are the only planet in this solar system or even this universe that contains life. NASA has been actively looking for other planets that contain life and has sought to identify what are known as exoplanets - <a href="https://exoplanets.nasa.gov/">https://exoplanets.nasa.gov/</a> (check out this link for information on what exoplanets are). What characteristics would you expect to find on a planet that supports life?</p> <p>You must create your own thread before you can read other threads! Participation in this discussion topic is worth 10 points.</p>	50
<input type="checkbox"/> <a href="#">Discussion Topic 3 - The Cell</a>	<p>Select one of the organelles or structures that we discussed in the lecture on the parts of the cell and briefly describe where it is located in the cell, its appearance and the role it carries out.</p> <p>Look around your home or place of work and find an item or process that is analogous to the organelle you described. Be sure to explain how that item or process is analogous to the cell structure or organelle; be specific. Here is an example of an analogy:</p> <p><i>A record player is like the rough endoplasmic reticulum in that it takes information encoded in the grooves of the record and translates them into a song from start to finish. The grooves in the record are like xxxxx and the song produced is like xxxxxx.</i></p> <p>You will need to justify your analogy and provide the information indicated by xxxxxx. You may not use this example</p>	27
<input type="checkbox"/> <a href="#">Respiration and Photosynthesis Questions</a>	Drop your questions about respiration and photosynthesis here!!!	0
<input type="checkbox"/> <a href="#">Discussion 4 - Social distancing</a>	<p>The novel corona virus, Covid-19 has been in the news for the past few weeks. As time goes on, more and more cases are expected in America, and in Alabama. One of the main recommendations from public health officials is to engage in social distancing. The idea is that if we encounter less people we can slow the spread of this new infectious agent. Check out this simulation from the Washington Post - <a href="https://www.washingtonpost.com/graphics/2020/world/corona-simulator/">https://www.washingtonpost.com/graphics/2020/world/corona-simulator/</a></p>	29

of 4 3 words Text Predictions: On

## Evidence for SLO 3: New Assessment Instrument Questions.

### Biology 101 – Revised Student Learning Outcome Assessment

#### SLO1

1. The correct sequence of the scientific method is
  - a. observation, questions, hypothesis, experiments, results
  - b. questions, observations, hypothesis, results, experiments
  - c. observations, hypothesis, experiment, results, questions
  - d. observations, questions, hypotheses, results, experiments
  - e. observations, results, questions, experiments, hypotheses
2. In order to arrive at a solution to a problem, a scientist usually conducts one or more
  - a. Laws
  - b. Theories
  - c. Experiments
  - d. Principles
3. As a result of experimentation
  - a. More hypothesis may be developed
  - b. More questions may be asked
  - c. A new biological principle could emerge
  - d. Entire theories could be modified or discarded
  - e. All of the above

#### SLO2

4. The main difference between prokaryotes and eukaryotes is that
  - a. prokaryotes lack a nucleus, eukaryotes have a nucleus
  - b. eukaryotes lack a nucleus, prokaryotes have a nucleus
  - c. prokaryotes have cell walls, eukaryotes do not have cell walls
  - d. eukaryotes have a cell wall, prokaryotes do not have cell walls
  - e. none of the above
5. The building blocks of proteins are called
  - a. amino acids
  - b. nucleotides

7. "Double helix" describes the structure of
  - a. polysaccharides
  - b. fats
  - c. fibrous proteins
  - d. DNA
  - e. RNA

8. The first phase of cellular respiration is
  - a. the citric acid cycle.
  - b. glycolysis.
  - c. the electron transport system.
  - d. fermentation.

9. Plant cells differ from animal cells in that they have
  - a. cell walls
  - b. nuclei
  - c. chloroplasts
  - d. a & b
  - e. a & c

10. "Phospholipid bilayer" describes the structure of
  - a. ribosomes
  - b. mitochondria
  - c. chloroplast
  - d. smooth endoplasmic reticulum
  - e. plasma membrane

#### SLO 3

11. DNA and RNA are polymers composed of \_\_\_\_\_ monomers
  - a. Nucleotide
  - b. Carbohydrate
  - c. Fatty acid
  - d. Amino acid

12. How is it that the cells in different body tissues are able to perform different functions?
  - a. The cells exhibit different patterns of gene expression
  - b. Different chromosomes are inactivated in different cells
  - c. The cells contain different genes



## Assessment Record

Program: Biology-BIO 102

Assessment period: 2020-2021

### Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and to be a more informed member of their community, able to make responsible decisions in biological matters.

### Course Student Learning Outcomes & Assessment Plan

Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence			Use of Results
<b>SLO1:</b> Demonstrate knowledge of evolution in both plant and animal life.	Student learning outcomes were assessed by using a 25 questions standardized multiple choice examination at the end of the semester. A total of 7 questions (Q1-Q7) were used to assess SLO 1.  See appendix A: BIO 102 SLO Assessment	70% or > successful 69% or < unsuccessful The percent is based upon the average of correctly answered questions related to SLO 1.	Fall 2020	Shelby	# students tested = 43 # correct = 276 % correct = 92%	<b>Observations/Changes</b>  Students successfully mastered SLO 1. The success rate increased from 72% (19/20) to 82% (20/21). It appears that providing students with access to course materials throughout the semester is beneficial.  Deeper analysis of the SLO assessment
				Pell City	# students tested = 31 # correct = 156 % correct = 72%	
			Spring 2021	Shelby	# students tested = 54 # correct = 306 % correct = 81%	
			Summer 2021	Shelby	# students tested = 26 # correct = 151 % correct = 83%	
			<b>Total Students Tested = 154</b>			

			<b>Total Annual Success Rate: 82%</b>			<p>showed that while overall students met the benchmark for success, they struggled with SLO1 Q2 (Fittest Organism). Instructors will focus on the fittest organism concept in instruction throughout the semester. Instructors will also provide students with <a href="#">materials that they can access at home</a>. As a department we noticed a distinct trend, where students learning objective mastery increased with the transition to online learning. This could be due to continual access to course materials and lectures.</p>
<p><b>SLO 2:</b> Identify general characteristics, anatomy, and taxonomy of plant and animals.</p>	<p>Student learning outcomes were assessed by using a 25 question standardized multiple choice examination at the end of the semester. A total of 14 questions (Q8-Q21) were used to assess SLO 2.</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions related to SLO 2.</p>	<p>Fall 2020</p>	<p>Shelby</p>	<p># students tested = 43 # correct = 538 % correct = 89%</p>	<p><b>Observations/Changes</b></p> <p>Students successfully mastered SLO 2. The success rate for SLO 2 was 87% which is an increase from 19/20, which had an SLO mastery of 77%. It appears that providing students with course materials throughout</p>
				<p>Pell City</p>	<p># students tested = 31 # correct = 378 % correct = 87%</p>	
			<p>Spring 2021</p>	<p>Shelby</p>	<p># students tested = 54 # correct = 642 % correct = 85%</p>	
			<p>Summer 2021</p>	<p>Shelby</p>	<p># students tested = 26 # correct = 307 % correct = 84%</p>	

	See appendix A: BIO 102 SLO Assessment		<p><b>Total Students Tested = 154</b>  <b>Total Annual Success Rate: 87%</b></p>			<p>the semester is beneficial.</p> <p>Deeper analysis of the SLO assessment results showed that students struggled the most with I SLO2 Q13 (Alteration of Generations of Plants) and Q17 (Examples of Communities). Instructors will work to increase their covered of these topics. Instructors will also provide students with <a href="#">materials that they can access at home</a>. As a department we noticed a distinct trend, where students learning objective mastery increased with the transition to online learning. This could be due to continual access to course materials and lectures.</p>
<p><b>SLO3:</b> Explain the interrelationships between the varied life forms</p>	<p>Student learning outcomes were assessed by using 25 questionstandardized multiple choice</p>	<p>70% or &gt; successful  69% or &lt; unsuccessful</p>	<p>Fall 2020</p>	<p>Shelby</p>	<p># students tested = 43  # correct = 134  % correct = 78%</p>	<p><u><b>Observations/Changes</b></u></p> <p>Students successfully mastered SLO 3. The</p>
				<p>Pell City</p>	<p># students tested = 31</p>	



<p>on earth and identify the role of humans within ecological systems.</p>	<p>examination at the end of the semester. A total of 4 questions (Q22-Q25) were used to assess SLO 3.</p> <p>See appendix A: BIO 102 SLO Assessment</p>	<p>The percent is based upon the average of correctly answered questions related to SLO 3.</p>	<table border="1" data-bbox="905 131 1638 423"> <tr> <td></td> <td></td> <td># correct = 109 % correct = 88%</td> </tr> <tr> <td>Spring 2021</td> <td>Shelby</td> <td># students tested = 54 # correct = 212 % correct = 98%</td> </tr> <tr> <td>Summer 2021</td> <td>Shelby</td> <td># students tested = 26 # correct = 89 % correct = 86%</td> </tr> </table> <p><b>Total Students Tested = 154</b> <b>Total Annual Success Rate: 88%</b></p>			# correct = 109 % correct = 88%	Spring 2021	Shelby	# students tested = 54 # correct = 212 % correct = 98%	Summer 2021	Shelby	# students tested = 26 # correct = 89 % correct = 86%	<p>success rate for SLO 2 was 88% which is an increase from 19/20, which had an SLO mastery of 81%. It appears that providing students with course materials throughout the semester is beneficial.</p> <p>Instructors will provide students with <a href="#">materials that they can access at home</a>. As a department we noticed a distinct trend, where students learning objective mastery increased with the transition to online learning. This could be due to continual access to course materials and lectures. Communities and populations will continue to be covered in depth (see additional evidence SLO 3)</p>
		# correct = 109 % correct = 88%											
Spring 2021	Shelby	# students tested = 54 # correct = 212 % correct = 98%											
Summer 2021	Shelby	# students tested = 26 # correct = 89 % correct = 86%											
<p><b>Plan submission date: Plan submission date:</b></p>		<p><b>Submitted by:</b></p>											

## Bio102 SLO Quiz

### SLO1

1. The idea that organisms with genetically determined characteristics that make them better suited for the environment will have more surviving offspring is

- A. the inheritance of acquired characteristics.
- B. the Hardy-Weinberg concept.
- C. the theory of natural selection.
- D. convergent evolution.

2. The fittest organism in a population is the

- A. organism that successfully produces the most offspring.
- B. strongest and fastest organism.
- C. organism that lives longest.
- D. most intelligent organism.

3. The theory of natural selection was proposed

- A. independently by Wallace
- B. jointly by Darwin and Wallace.
- C. independently by Mendel.
- D. jointly by Wallace and Lamarck.

4. A species is a group of organisms that
- A. can produce fertile offspring when mated.
  - B. all live in the same geographic region.
  - C. always look the same in size and color.
  - D. All of these answers are true.

5. All of the genes shared by a population are its
- A. gene frequency.
  - B. gene pool.
  - C. fitness.
  - D. gene flow.

6. For two types of organisms to belong to the same species, they must
- A. look alike.
  - B. live in the same geographic region.
  - C. be able to naturally produce fertile offspring.
  - D. contain the same gene frequencies.

7. A situation in which a genetically distinct local population is established by a few colonizing individuals is known as
- A. fitness.
  - B. gene pooling.
  - C. genetic drift.
  - D. the founder effect.

## SLO2

8. The style and the stigma are both parts of the

- A. stamen.
- B. ovary.
- C. seed.
- D. pistil.

9. Gymnosperms

- A. are usually insect pollinated.
- B. are found above the timberline on mountains.
- C. are seed-bearing plants.
- D. have flowers.

10. All plants

- A. have cell walls of cellulose.
- B. both gametophyte and sporophyte generations.
- C. cells with chloroplasts.
- D. All of the above are correct.

11. Xylem tissues transport

- A. organic molecules.
- B. sperm.
- C. water.
- D. eggs.

12. Plants with seeds inside a fruit

- A. produce pollen.
- B. are angiosperms.
- C. are flowering plants.
- D. All of the above are correct.

13. Alternation of generations means that a plant

- A. alternates between male and female stages.
- B. has one generation that has flowers and another that does not.
- C. has a sporophyte and a gametophyte stage in its life cycle.
- D. switches in its life cycle between above ground and below ground stages.

14. What is the difference between pollination and fertilization?

- A. Pollination is the movement of pollen from the male region of a plant to the female region. Fertilization is the union of a sperm and egg.
- B. Pollination is the movement of pollen from the female region of a plant to the male region. Fertilization is the union of a sperm and egg.
- C. Pollination is the same as fertilization.
- D. Fertilization is the movement of pollen from the male region of a plant to the female region. Pollination is the union of a sperm and egg.

15. This term is used to describe the fact that plants cycle between two different stages in their life, the diploid sporophyte and haploid gametophyte.

- A. tropism
- B. sporulation
- C. alternation of generations
- D. germination

16. An animal that feeds on living material but does not kill the animal it feeds on is a

- A. prey.
- B. host.
- C. parasite.
- D. predator.

17. An example of community is

- A. this class.
- B. the various kinds of plants, animals, and bacteria in a vacant lot.
- C. bees in a hive.
- D. the water, soil, and air in a farmer's field.

18. Which of the following is NOT a characteristic of most animals?

- A. They are heterotrophic.
- B. They have an extracellular matrix of proteins such as collagen.
- C. They have cell walls.
- D. They have a nervous system.

19. Which of the phyla of animals has the greatest number of species?

- A. Arthropoda
- B. Chordata
- C. Mollusca
- D. Annelida
- E. Nematoda

20. The primary organ of photosynthesis in a plant is the:

- A. Stomata
- B. Leaf
- C. Bark
- D. Stem
- E. Chlorophyll

21. The evaporation of water from the leaf of a plant is:

- A. Transpiration
- B. Totally prevented by the leaf's cuticle
- C. Hydrolysis
- D. Condensation
- E. Sublimation

### **SLO3**

22. If you were studying a species which has totally disappeared from the planet you would be studying:

- A. An endangered species
- B. An introduced species
- C. An extinct species
- D. A threatened species
- E. A keystone species

23. If you were studying variation among members of a population you would most likely be studying which of the following?

- A. Sustainable diversity
- B. Ecosystem diversity
- C. Landscape diversity
- D. Keystone diversity
- E. Genetic diversity

24. Species that influence the viability of a community, although their numbers may not be exceedingly high, are referred to as:

- A. Pioneer species
- B. Alien species
- C. Introduced species
- D. Nonnative species
- E. Keystone species

25. You are walking along a beach and find an organism which has an exoskeleton, five pairs of walking legs, and compound eyes. Based on this information the organism you found was:

- A. An arachnid
- B. An insect
- C. A centipede
- D. A crustacean
- E. A millipede



**SLO1** In the Natural Selection Virtual Lab, students are stepped through an experiment that studies fitness of insects.3

The image shows a course management interface with a dark sidebar on the left and a main content area on the right. The sidebar contains a list of navigation items, each with a dropdown arrow. The main content area displays a list of virtual lab modules, each with the McGraw Hill Education logo and a title with a dropdown arrow. The module 'A Virtual Labs Tutorial' is highlighted with a purple bar on the left side of the main content area.

Navigation Item	Module Title
Syllabus Participation Quiz!	<b>Osmosis - Tonicity in Elodea Cells</b>
WME 2	<b>Photosynthesis - Carbon Dioxide Uptake</b>
Chapter Unit Material/Powerpoints!	<b>Natural Selection: In Insects</b>
Announcements!	<b>A Virtual Labs Tutorial</b>
Assignments Portal!	<b>Hard Winter Concept</b>
Connect Virtual Labs Content!	<b>Evolution View Check: Quail Eggs</b>
Information	<b>Biodiversity</b>
Assessments: Quizzes & Exams	
Learning Modules!	
Discussions	
Email/Course Messages	
Groups	
Tools	
Help	
<b>Course Management</b>	
Control Panel	
Content Collection	
Course Tools	

**SLO 2** The excerpt below is from the instructor's lecture notes that cover this material.

- a. **The gametophyte and sporophyte take turns producing each**
  - (1) This is called **alternation of generations** and:
  - (2) **it is unique to plants and certain algae.**
  - (3) **Gametophytes reproduce sexually. Their gametes:**
    - (a) **unite to form zygotes which**
    - (b) **develop into new sporophytes.**
  - (4) **Sporophytes:**
    - (a) **reproduce asexually and**
    - (b) **their spores give rise to new gametophytes.**
- e. **Mosses and other bryophytes are unique among plants in having the gametophyte as the dominant generation. But as plants evolved, the sporophyte became the more highly developed generation.**

- Home Page
- Syllabus Participation Quiz!
- HOME 2
- Chapter Unit Material/Powerpoints!
- Announcements!
- Assignments Portal!
- Connect Virtual Labs Content!
- Information
- Assessments: Quizzes & Exams

### Table of Contents

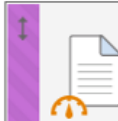
- 1. Chp 16 Lecture Notes: Th
- 2. Chap 28: Lecture Notes: 1
- 3. Chp 29 : Lecture Notes: T
- 4. Virtual Lab: Plant Transpi
- 5. Virtual Lab: Plant Transpi
- 6. MasteringBiology Link
- 7. Plant Transpiration Video
- 8. Photosynthesis: Crash Co
- 9. Chp 24: Plant Structure, F
- 10. Chp 25: Plant Nutrition &
- 11. Chp 26: Plant Hormone:

## Unit 3 -Plants

Build Content Assessments Tools Partner Content



**Chp 16 Lecture Notes: The Evolution of Plants & Fung!**



**Chap 28: Lecture Notes: The Life of a Flowering Plant!**



**Chp 29 : Lecture Notes: The Working Plant!**

**SLO 3** Definition and examples of communities covered in lectures.

If this item does not open automatically you can [open Ch 18 Lecture Notes: Intro to Ecology & the Biosphere! here](#)

**BIO 102 - Introduction to Biology II (30267)**

- Syllabus Participation Quiz!
- Home Page
- HOME 2
- Information
- Chapter Unit Material/Powerpoints!
- McGraw Hill Connect : Virtual Labs
- Assessments: Quizzes & Exams
- Assignments Portal!
- Course Session: Collaborate Video Recordings!
- Content
- Discussions
- Email/Course Messages
- Groups
- Tools
- Help
- Announcements!

Chapter 18

2 / 12 | 100% +

- The **population** is a group of individuals of the same species living in a particular geographic area.
  - Population ecology concentrates mainly on factors that affect density and growth.
  - For example, what factors limit the number of striped mice that can inhabit a particular area?
- A **community** consists of all the organisms that inhabit a particular area. It is an assemblage of populations of different species.
  - Community ecology focuses on how interactions among species, such as predation, competition, and symbiosis, affect community structure and organization.
  - For example, what factors influence the diversity of tree species that make up a particular forest?
- An **ecosystem** includes all the abiotic factors and the community of species in a certain area.
  - Ecosystem ecology is concerned with the energy flow and the cycling of chemicals among the various biotic and abiotic factors.
  - The biosphere is the global ecosystem—the sum of all the planet’s ecosystems, or all of life and where it lives.
    - It is the most complex level of ecology.
    - Isolated in space, the biosphere is self-contained, or closed, except that its photosynthetic producers derive energy from sunlight, and it loses heat to space.

- Home Page
- Syllabus Participation Quiz!
- HOME 2
- Chapter Unit Material/Powerpoints!
- Announcements!
- Assignments Portal!
- Connect Virtual Labs Content!
- Information
- Assessments: Quizzes & Exams
- Learning Modules!
- Discussions
- Email/Course Messages
- Groups
- Tools
- Help

If this item does not open automatically you can [open Ch 20 Lecture Notes: Communities & Ecosystems! here](#)

2 / 9 | 100% +

- b. to herbivores and then
- c. to carnivores.

III. Interspecific Interactions in Communities

A. Competition Between Species

1. **Interspecific interactions are interactions between species.**
2. Interspecific competition may result when populations of two or more species in a community rely on similar limiting resources.
  - a. As a population's density increases and nears carrying capacity, every individual has access to a smaller share of some **limiting resource (food and water for example)**
  - b. In interspecific competition, the population growth of a species may also be limited by the density of competing species.
3. Competitive Exclusion Principle
  - a. In 1934, Russian ecologist **G. F. Gause** studied the effects of interspecific competition.
    - (1) **He used laboratory cultures of two closely related species of protists, Paramecium aurelia and Paramecium caudatum.**
    - (2) **When cultured separately, each population grew rapidly and then leveled off at the apparent carrying capacity.**
    - (3) **But when cultured together, P. caudatum was driven to extinction.**



## Assessment Record

Program: Biology ( BIO 103)

Assessment period: Fall 2020 – Summer 2021

**Program or Department Mission:**

Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters.

### Course Student Learning Outcomes & Assessment Plan

**Biology 103 Course Level Assessment Rubric:**

**Course Level Student Learning Outcomes**

1. Students will demonstrate knowledge of the fundamental concepts and processes in biology including the scientific method, evolution, biological macromolecules and biochemistry
2. Students will demonstrate an ability to identify molecular and cellular processes in prokaryotic and eukaryotic cells.
3. The student will demonstrate an ability to recognize genetic, morphological and life cycle characteristics of bacteria, fungi, and viruses.

Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence	Use of Results

<p>1. Demonstrate knowledge of the fundamental concepts and processes in biology including the scientific method, evolution, biological macromolecules and biochemistry</p>	<p>Student learning outcomes were assessed by using a 14 question standardized multiple choice examination at the end of the semester. A total of four questions (Q1 – Q4) were used to assess SLO1</p> <p><a href="#">See Appendix A for SLO assessment questions</a></p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions related to SLO1</p>	Fall 2020	Jefferson	# students tested = 0 # correct = % correct = %	<p><b>Observations/Changes</b></p> <p>Student mastery of SLO 1 increased from 81% to 92% this year. All instructors made a concerted effort to post materials online on the LMS for students to access throughout the semester.</p> <p><a href="#">We will continue to make materials available throughout the semester for students regardless of course modality (traditional, hybrid or online)</a></p>
				Shelby	# students tested = 101 # correct = 363 % correct = 90%	
			Spring 2021	Jefferson	# students tested = 43 # correct = 154 % correct = 90%	
				Shelby	# students tested = 44 # correct = 170 % correct = 97%	
				Clanton	# students tested = 25 # correct = 97 % correct = 97%	
			Summer 2021	Jefferson	# students tested = 40 # correct = 136 % correct = 85%	
				Shelby	# students tested = 32 # correct = 127 % correct = 99%	
				Clanton	# students tested = 25 # correct = 93 % correct = 93%	
			<p><b>Total Students Tested = 310</b> <b>Total Annual Success Rate: 92%</b></p>			
<p>2: Demonstrate an ability to identify molecular and cellular processes in prokaryotic and eukaryotic cells.</p>	<p>Student learning outcomes were assessed by using a 14 question standardized multiple choice examination at</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly</p>	Fall 2020	Jefferson	# students tested = 0 # correct = % correct =	<p><b>Observations/Changes</b></p> <p>Student mastery of SLO 2 rose from 61% in 2019/2020 to 84% success. Molecular and cellular processes are challenging topics and</p>
				Shelby	# students tested = 101 # correct = 576 % correct = 81%	
			Spring 2021	Jefferson	# students tested = 43 # correct = 221	

	<p>the end of the semester. A total of seven questions (Q5 – Q11) were used to assess SLO2</p> <p><a href="#">See Appendix A for SLO assessment questions</a></p>	<p>answered questions related to SLO2</p>	<table border="1"> <tr> <td></td> <td></td> <td>% correct = 73%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 44 # correct = 280 % correct = 91%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students tested = 25 # correct = 162 % correct = 93%</td> </tr> <tr> <td>Summer 2021</td> <td>Jefferson</td> <td># students tested = 40 # correct = 223 % correct = 80%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 32 #correct = 188 % correct = 84%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students tested = 25 # correct = 166 % correct = 95%</td> </tr> </table> <p><b>Total Students Tested = 310</b> <b>Total Annual Success Rate: 84%</b></p>			% correct = 73%		Shelby	# students tested = 44 # correct = 280 % correct = 91%		Clanton	# students tested = 25 # correct = 162 % correct = 93%	Summer 2021	Jefferson	# students tested = 40 # correct = 223 % correct = 80%		Shelby	# students tested = 32 #correct = 188 % correct = 84%		Clanton	# students tested = 25 # correct = 166 % correct = 95%	<p>we have worked to ensure students have access to course lectures and study materials throughout the semester. I</p> <p>Throughout the semester, instructors will work <a href="#">to link molecular and cellular processes to all content</a>. Instructors will also continue to make learning materials (lectures, study aids, etc) available to students throughout the semester.</p>
		% correct = 73%																				
	Shelby	# students tested = 44 # correct = 280 % correct = 91%																				
	Clanton	# students tested = 25 # correct = 162 % correct = 93%																				
Summer 2021	Jefferson	# students tested = 40 # correct = 223 % correct = 80%																				
	Shelby	# students tested = 32 #correct = 188 % correct = 84%																				
	Clanton	# students tested = 25 # correct = 166 % correct = 95%																				
<p>3: Demonstrate an ability to recognize genetic, morphological and life cycle characteristics of bacteria, fungi, and viruses.</p>	<p>Student learning outcomes were assessed by using a 14 question standardized multiple choice examination at the end of the semester. A total of three questions (Q12 – Q14) was used to assess SLO3</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions related to SLO3</p>	<table border="1"> <tr> <td>Fall 2020</td> <td>Jefferson</td> <td># students tested = # correct = % correct =</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 101 # correct =261 % correct = 86%</td> </tr> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students tested = 43 # correct = 115 % correct = 89%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 44 # correct = 101 % correct = 77%</td> </tr> </table>	Fall 2020	Jefferson	# students tested = # correct = % correct =		Shelby	# students tested = 101 # correct =261 % correct = 86%	Spring 2021	Jefferson	# students tested = 43 # correct = 115 % correct = 89%		Shelby	# students tested = 44 # correct = 101 % correct = 77%	<p><b>Observations/Changes</b></p> <p>SLO 3 mastery increased significantly from 63% in 19/20 to 87% in 20/21. Access to the material earlier in the semester and throughout the semester appears to have had a beneficial impact on student mastery.</p>						
Fall 2020	Jefferson	# students tested = # correct = % correct =																				
	Shelby	# students tested = 101 # correct =261 % correct = 86%																				
Spring 2021	Jefferson	# students tested = 43 # correct = 115 % correct = 89%																				
	Shelby	# students tested = 44 # correct = 101 % correct = 77%																				



	<a href="#">See Appendix A for SLO assessment questions</a>		<table border="1"> <tr> <td data-bbox="877 142 1054 250"></td> <td data-bbox="1054 142 1234 250">Clanton</td> <td data-bbox="1234 142 1621 250"># students tested = 25 # correct = 71 % correct = 95%</td> </tr> <tr> <td data-bbox="877 250 1054 357">Summer 2021</td> <td data-bbox="1054 250 1234 357">Jefferson</td> <td data-bbox="1234 250 1621 357"># students tested = 40 # correct = 111 % correct = 93%</td> </tr> <tr> <td data-bbox="877 357 1054 464"></td> <td data-bbox="1054 357 1234 464">Shelby</td> <td data-bbox="1234 357 1621 464"># students tested = 32 # correct = 78 % correct = 81%</td> </tr> <tr> <td data-bbox="877 464 1054 571"></td> <td data-bbox="1054 464 1234 571">Clanton</td> <td data-bbox="1234 464 1621 571"># students tested = 25 # correct = 69 % correct = 92%</td> </tr> </table> <p data-bbox="877 613 1234 646"><b>Total Students Tested = 310</b></p> <p data-bbox="877 654 1266 686"><b>Total Annual Success Rate: 87%</b></p>		Clanton	# students tested = 25 # correct = 71 % correct = 95%	Summer 2021	Jefferson	# students tested = 40 # correct = 111 % correct = 93%		Shelby	# students tested = 32 # correct = 78 % correct = 81%		Clanton	# students tested = 25 # correct = 69 % correct = 92%	<p data-bbox="1638 146 1927 495"><a href="#">We will work to introduce the content of SLO 3 into the material covered earlier in the semester.</a> We will also continue to provide access to all the course content throughout the semester.</p>
	Clanton	# students tested = 25 # correct = 71 % correct = 95%														
Summer 2021	Jefferson	# students tested = 40 # correct = 111 % correct = 93%														
	Shelby	# students tested = 32 # correct = 78 % correct = 81%														
	Clanton	# students tested = 25 # correct = 69 % correct = 92%														
Plan submission date:			<b>Submitted by:</b>													

## Appendix A: BIO 103 SLO Assessment

### SLO 1

1. A hypothesis should always be \_\_\_\_\_.
  - A. correct
  - B. based on observation
  - C. previously proven
  - D. presented as at least three possible explanations
2. Scientist have determined the age of Earth by using a process involving \_\_\_\_\_.
  - A. radioactive decay
  - B. counting rock layers.
  - C. measuring incoming cosmic dust
  - D. studying the movement of the continents
3. In an atom protons would be found
  - A. in an orbital around the nucleus
  - B. in the nucleus
  - C. attached to electrons
  - D. it varies by element
  - E. bonds
4. The building blocks of proteins are \_\_\_\_\_.
  - A. amino acids
  - B. nucleotides
  - C. fatty acids
  - D. triglycerides
  - E. peptides

**SLO 2**

5. During aerobic respiration, the glucose molecule yields energy through a series of pathways. Which of the following is NOT one of these pathways?
- A. Kreb's cycle
  - B. Glycolysis
  - C. Electron Transport Chain
  - D. Calvin Cycle
6. In the Dark Reactions/Calvin Cycle \_\_\_\_\_ is used to build a chain of carbons to form a simple sugar.
- A. atmospheric oxygen
  - B. methane gas
  - C. carbon dioxide
  - D. amino acids
  - E. nucleic acids
7. While there are other differences between prokaryotes and eukaryotes, the most defining difference is the absence of \_\_\_\_\_ in prokaryotes.
- A. plasma membrane
  - B. DNA
  - C. cytoplasm
  - D. nucleus
8. "Phospholipid bilayer" best describes the structure of
- A. ribosomes
  - B. mitochondria
  - C. chloroplast
  - D. cytoplasm
  - E. plasma membrane
9. Mendel found that the ratio of the two phenotypes in the F<sub>2</sub> generation of a monohybrid cross is
- A. 1:2:1
  - B. 9:3:3:1
  - C. 3:1

D. 1:3:3:3

E. 1:2

10. The process in which mRNA directs the synthesis of proteins is known as

A. transcription

B. translation

C. replication

D. a & b

11. The chromosome number is reduced in half in

A. mitosis

B. meiosis

C. neither a nor b

D. both a & b

**SLO 3**

12. Bacteria reproduce asexually by \_\_\_\_\_.

A. Binary fission

B. Mitosis

C. Meiosis

D. Seeds

13. Protozoa differ from bacteria in that protozoa \_\_\_\_\_.

A. Have a cell wall

B. Have a nucleus

C. Have a cell membrane

D. Have ribosomes

14. A virus would be classified as being in what domain?

A. Protista

B. Eukaryotic

C. Prokaryotic

D. None of the above

Evidence for SLO 1,2,3: Continuous access to materials. Screenshots of BIO 103 course shells for online access 2020/2021.

The image displays two screenshots of a Blackboard course shell for BIO 103 - Principles of Biology I (20942).

**Left Screenshot: Chapter 1 - Themes in Biology**

- Course Management:** Control Panel, Content Collection, Course Tools, Evaluation, Grade Center, Users and Groups, Customization, Packages and Utilities, Help.
- Chapter 1 - Themes in Biology:**
  - Chapter 1 - The Study of Life:** Link to textbook chapter 1
  - Chapter 1 - pdf:** Enabled: Statistics Tracking. Attached Files: Biology 2e - Chapter 1.pdf (10.143 MB). Biology 2e chapter 1 in pdf form
  - Chapter 1 - Recorded lecture:** Recorded lecture for chapter 1
  - Chapter 1 - Lecture slides:** Enabled: Statistics Tracking. Attached Files: Themes in the Study of Life (1).pptx (4.361 MB). Lecture slides for chapter 1
  - Chapter 1 - guided lecture notes:** Enabled: Statistics Tracking. Attached Files: Chap 1 Lecture Notes.docx (14.197 KB)

**Right Screenshot: Principles of Biology I - Content**

- Course Management:** Control Panel, Content Collection, Course Tools, Evaluation, Grade Center, Users and Groups, Customization, Packages and Utilities, Help.
- Content:**
  - Start Here:** Enabled: Statistics Tracking
  - Syllabus:** Enabled: Statistics Tracking. Attached Files: Syllabus\_BIO\_103 12007 R Hybrid.doc (68 KB)
  - Lectures:**
  - Lab:** Enabled: Statistics Tracking
  - Study Guides:** Enabled: Statistics Tracking
  - Exams:** Enabled: Statistics Tracking
  - Case Studies:** Enabled: Statistics Tracking

## Evidence for SLO 2: Cellular and molecular processes in more content

The left screenshot shows the 'Lab Handouts' page for 'BIO 103 - Principles of Biology I (21887)'. The page lists several lab handouts with their titles, 'Enabled' status, and 'Attached Files' with sizes:

- Metric Conversions**: Enabled: Statistics Tracking. Attached Files: Lab B Metrics (1) (8).docx (1,153 KB)
- Acids/Bases and pH**: Enabled: Statistics Tracking. Attached Files: Acid bases pH and buffers lab.docx (100,521 KB)
- Microscope**: Enabled: Statistics Tracking. Attached Files: Microscopy Lab.docx (662,411 KB), Cell Structure labeling.docx (1,438 KB), Cell structure and function review.docx (1,061 KB), microscopic cells and organism review.docx (7,027 KB). Description: Complete the "Microscopy lab" and the "Cell Structure labeling" worksheets for full credit on this lab. Use the "review" handouts for help studying and identifying microorganisms.
- Diffusion and Osmosis**: Enabled: Statistics Tracking. Attached Files: Diffusion and Osmosis.docx (32,795 KB), Polar and nonpolar compounds.docx (49,867 KB), osmosis\_potato\_aloidea.pdf (112,196 KB)
- Organic Molecules**: Enabled: Statistics Tracking. Attached Files: Organic molecules.docx (1,048 KB)

The right screenshot shows the 'Lecture' page for 'BIO 103 - Principles of Biology I (30942)'. It displays a list of chapters:

- Chapter 1 - Themes in Biology
- Chapter 2.1 - The Chemical Foundation of Life
- Chapter 2.2 - Water and life
- Chapter 2.3 - Carbon
- Chapter 3 - Biological Macromolecules
- Chapter 4 - The Cell
- Chapter 5 - Structure and Function of Plasma Membranes
- Chapter 6 - Metabolism

BIO 103

Transcription & Translation

Spring 2020

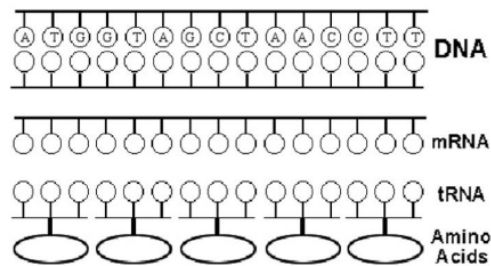
Read the directions carefully and complete the worksheet.

### Transcription & Translation Summary

For each example:

- fill in the complementary DNA strand
- fill in the correct mRNA bases by transcribing the bottom DNA code
- fill in the correct tRNA bases
- translate the mRNA codons to find the correct amino acids

#### Example #1



Example #2

Evidence for SLO 3: Introducing bacteria, fungi, and viruses earlier in the semester

<b>Week 4</b>	<b>Tue. 9/10</b>		
	Proteins	<i>Chap. 3: 3.4</i>	Lab #3: Microscope
	Nucleic acids	<i>Chap. 3: 3.3</i>	
	<b>Lecture quiz 5</b>		
	<b>Thu. 9/12</b>		
	<b>Exam #1:</b> Scientific method, characteristics of life, atomic structure, chemical bonds, water properties, pH scale, organic cmpds, functional groups, carbs, proteins, lipids, nucleic acids		
<b>Week 5</b>	<b>Tue. 9/17</b>		
	Cell theory	<i>Chap. 4: 4.1</i>	Lab #4: Organic Compounds
	Microscopes	<i>Chap. 4: 4.1</i>	
	<b>Thu. 9/19</b>		
	Prokaryotic cells vs. eukaryotic cells	<i>Chap. 4: 4.2</i>	
	<b>Lecture quiz 6</b>		
<b>Week 6</b>	<b>Tue. 9/24</b>		
	Prokaryotic organelles	<i>Chap. 4: 4.2</i>	Lab #5: Cells
	Eukaryotic organelles	<i>Chap. 4: 4.3--4.7</i>	
	<b>Lecture quiz 7</b>		
	<b>Thu. 9/26</b>		
	Eukaryotic organelles	<i>Chap. 4: 4.3--4.7</i>	
	<b>Lecture quiz 8</b>		



## Assessment Record

Program: Biology ( BIO 104)

Assessment period: Fall 2020 –Summer 2021

### Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters.

### Course Student Learning Outcomes & Assessment Plan

#### **Biology 104 Course Level Assessment Rubric:**

#### **Department Level Student Learning Outcomes**

1. Students will understand the principles and processes that are fundamental to life.
2. Students will understand the fundamental principles of biology at the elemental, cellular, molecular, and organism level
3. Students will receive the appropriate Biological knowledge to support a career within the Scientific, Medical, or Health and Fitness community
4. Students will understand principles of human biology that relate to health and fitness

#### **Course Level Student Learning Outcomes**

1. The student will recognize the fundamental principles and supporting evidence necessary to explain Darwinian evolution.
2. The student will demonstrate an ability to identify the structural characteristics and life cycles of both plant and animal phyla.
3. The student can recognize components of community ecology and identify how biodiversity contributes to a stable ecosystem.



Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence			Use of Results
<p>1. Recognize the fundamental principles and supporting evidence necessary to explain Darwinian evolution.</p>	<p>Student learning outcomes were assessed using a 20 question multiple-choice assessment at the end of each semester. A total of 9 questions (Q1-Q6 and Q 18-20) were used to assess understanding of SLO1</p> <p>See Appendix: BIO 104 assessment quiz</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions (1 to 6) related to SLO 1. (6 questions)</p>	Fall 2020	Jefferson	<p># students tested = 19 # correct = 152 % correct = 89%</p>	<p><b>Observations/Changes</b></p> <p>Students met the benchmark for success at a slightly lower level than last year (78% vs 82% success). Students were provided access to course materials through out the semester on the LMS. (see additional materials BIO 104)</p> <p>As we transition back to traditional in person learning, we will continue to provide students with access to online materials and will compare the success rates of students in traditional sections and online sections.</p>
Fall 2020	Shelby	<p># students tested = 5 # correct = 28 % correct = 62%</p>				
Spring 2021	Jefferson	<p># students tested = 32 # correct = 231 % correct = 80%</p>				
Spring 2021	Shelby	<p># students tested = 22 # correct =142 % correct = 72%</p>				
Summer 2021	Jefferson	<p># students tested = 20 # correct = 132 % correct = 73%</p>				
<p><b>Total Students Tested = 98</b> <b>Total Annual Success Rate = 78%</b></p>						
<p>2. Demonstrate an ability to identify the structural characteristics and life cycles of both plant and animal phyla.</p>	<p>Student learning outcomes were assessed using a 20 question multiple-choice assessment at the end of each semester. A total of 6 questions (Q7-Q12) were used to assess mastery of SLO2</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions (7 to 12 and 18 to 20) related to SLO 2. (9 total)</p>	Fall 2020	Jefferson	<p># students tested = 19 # correct = 102 % correct = 89%</p>	<p><b>Observations/Changes</b></p> <p>Students met the benchmark for success at a slightly lower level than last year (84% vs 88% success). <a href="#">Students were provided access to course materials through out the semester on the LMS.</a> (see additional</p>
Fall 2020	Shelby	<p># students tested = 5 # correct = 21 % correct = 70%</p>				
Spring 2021	Jefferson	<p># students tested = 32 # correct =172 % correct = 90%</p>				
Spring 2021	Shelby	<p># students tested = 22 # correct = 83</p>				

	See Appendix: BIO 104 assessment quiz		<table border="1"> <tr> <td></td> <td></td> <td>% correct = 63%</td> </tr> <tr> <td>Summer 2021</td> <td>Jefferson</td> <td># students tested = 20 # correct = 118 % correct = 98%</td> </tr> </table> <p><b>Total Students Tested = 98</b> <b>Total Annual Success Rate = 84%</b></p>					% correct = 63%	Summer 2021	Jefferson	# students tested = 20 # correct = 118 % correct = 98%	<p>materials BIO 104). Students in the online sections were provided dissection kits in an effort to ensure the lab experience the online course was equitable to the traditional course offering.</p> <p>At home dissection protocols are being refined and updated to ensure the best student experience possible.</p>									
		% correct = 63%																			
Summer 2021	Jefferson	# students tested = 20 # correct = 118 % correct = 98%																			
3. Recognize components of population and community ecology and identify how biodiversity contributes to a stable ecosystem.	<p>Student learning outcomes were assessed using a 20 question multiple-choice assessment at the end of each semester. A total of 5 questions (Q13-Q17) were used to assess mastery of SLO3</p> <p>See Appendix: BIO 104 assessment quiz</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions (13 to 17) related to SLO 3. (5 total)</p>	<table border="1"> <tr> <td>Fall 2020</td> <td>Jefferson</td> <td># students tested = 19 # correct = 72 % correct = 76%</td> </tr> <tr> <td>Fall 2020</td> <td>Shelby</td> <td># students tested = 5 # correct = 16 % correct = 64%</td> </tr> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students tested = 32 # correct = 114 % correct = 71%</td> </tr> <tr> <td>Spring 2021</td> <td>Shelby</td> <td># students tested = 22 # correct = 62 % correct = 56%</td> </tr> <tr> <td>Summer 2021</td> <td>Jefferson</td> <td># students tested = 20 # correct = 72 % correct = 72%</td> </tr> </table> <p><b>Total Students Tested = 98</b> <b>Total Annual Success Rate = 69%</b></p>			Fall 2020	Jefferson	# students tested = 19 # correct = 72 % correct = 76%	Fall 2020	Shelby	# students tested = 5 # correct = 16 % correct = 64%	Spring 2021	Jefferson	# students tested = 32 # correct = 114 % correct = 71%	Spring 2021	Shelby	# students tested = 22 # correct = 62 % correct = 56%	Summer 2021	Jefferson	# students tested = 20 # correct = 72 % correct = 72%	<p><b>Observations/Changes</b></p> <p>Students did not meet the benchmark for success this year which is a drop from last year (69% vs 77% success). Ecology is the typically the last topic covered in the semester, when students are exhausted and preoccupied with finals. Time for ecology can also sometimes be cut into in an effort to ensure full understanding of previous learning objectives.</p>
Fall 2020	Jefferson	# students tested = 19 # correct = 72 % correct = 76%																			
Fall 2020	Shelby	# students tested = 5 # correct = 16 % correct = 64%																			
Spring 2021	Jefferson	# students tested = 32 # correct = 114 % correct = 71%																			
Spring 2021	Shelby	# students tested = 22 # correct = 62 % correct = 56%																			
Summer 2021	Jefferson	# students tested = 20 # correct = 72 % correct = 72%																			

				Instructors will work to thread ecological concepts into material covered earlier in the semester.
<b>Plan submission date:</b>			<b>Submitted by:</b>	

Appendix A: BIO 104 SLO Assessment

- 1) In the Hardy-Weinberg formula, what does  $q^2$  represent?
  - A) frequency of the  $a$  allele
  - B) frequency of the  $A$  allele
  - C) frequency of the  $aa$  genotype
  - D) frequency of the  $AA$  genotype
  
- 2) Disruptive selection
  - A) eliminates both extremes
  - B) eliminates one extreme type
  - C) favors heterozygotes
  - D) eliminates intermediate types
  
- 3) Natural selection always results in\_\_\_\_.
  - A) a decrease in the size of a population
  - B) offspring better adapted to their parents' environment than were their parents
  - C) increased genetic variation
  - D) offspring better adapted to a future environment
  
- 4) Which of the following is NOT one of the 5 agents that underlie evolutionary change?
  - A) gene flow
  - B) mutation
  - C) genetic drift
  - D) random mating
  - E) selection

- 5) Which of the following is NOT a type of prezygotic isolating mechanism?
- A) Temporal isolation                      B) Ecological isolation  
C) Prevention of gamete fusion          D) Hybrid sterility
- 6) Two populations of salamanders are separated by an impassable valley. The populations are:
- A) subspecies      B) allopatric      C) divergent      D) sympatric      E) founders
- 7) The embryonic tissue layer that will form the inner-most lining of the lungs and intestines is the\_\_\_\_\_.
- A) Endoderm      B) Transderm      C) Mesoderm      D) Ectoderm
- 8) The type of metazoan where the blastopore becomes the anus is the\_\_\_\_\_.
- A) Protostome              B) Deuterostome      C) Zygote              D) Bilateran
- 9) Malpighian tubules function as excretory organs in\_\_\_\_\_.
- A) Arthropods              B) Annelids              C) Echinoderms              D) Molluscs
- 10) Chordates possess all of the following characteristics some time during thier lives EXCEPT:
- A) ventral nerve cord                      B) postanal tail  
C) notocord                      D) pharyngeal slits
- 11) Mites and ticks belong to the order\_\_\_\_\_.
- A) Diplopoda              B) Araneae              C) Acari              D) Chilopoda
- 12) Amphibians likely evolved from
- A) cartilagenous fisbes                      B) very primitive fishes  
C) lobe-finned bony fishes                      D) ray-finned bony fishes
- 13) The term "habitat" is defined as:
- A) The ecological role that a particular species plays in it's environment.  
B) The environment where a specific individual is found.  
C) The specific location of a community.

D) A major type of ecosystem that covers a large geographic region of the Earth.

14) A school of fishes provides an example of the \_\_\_\_\_ pattern of dispersion.

- A) Clumped      B) uniform      C) random      D) clustered

15) Which of the following is true of the exponential growth model?

- A) Growth is limited by the carrying capacity  
B) There is an unlimited environment for growth  
C) It has 3 phases: lag, log and plateau  
D) All of the above are true

16) The size of a deer population in the wild depends on its \_\_\_\_\_ type relationships with other species.

- A) Parasite-host  
B) Competition  
C) Predator-prey  
D) Herbivory  
E) All of the above

17) Termites possess microorganisms in their gut that are able to digest cellulose from wood and break it down into simple sugars that feeds both organisms. This relationship may be described as

\_\_\_\_\_.

- A) symbiotic      B) parasitic      C) mutualistic      D) A and C

18) Which of the following is a type of vascular plant?

- A) Anthrocerotophyta      B) Hepaticophyta  
C) Bryophyta      D) Lycopphyta

19) The \_\_\_\_\_ serves primarily to transport water and minerals up from the plant's roots.

- A) rhizomes      B) xylem      C) phloem      D) stoma

20) Sporophytes are always

A) diploid

C) nonphotosynthetic

B) photosynthetic

D) haploid

## Additional Materials for BIO 104

Examples of course materials made available for the students throughout the semester

The screenshot shows a Blackboard course interface for 'Principles of Biology II (11516.202210)'. The left sidebar contains navigation options: Home Page, Information, Content, Discussions, Groups, Tools, and Help. Below these is the 'Course Management' section, which includes a 'Control Panel' with sub-items: Content Collection, Course Tools, Evaluation, Grade Center, Users and Groups, Customization, Packages and Utilities, and Help. The main content area is titled 'Content' and features a navigation bar with 'Build Content', 'Assessments', 'Tools', and 'Partner Content'. The content list includes:

- Introduction to BIO 104S**: A video player showing a man speaking. Availability: Item is hidden from students. Enabled: Statistics Tracking. A download link for 'BIO\_104\_Intro.mp4' is provided.
- BIO 104S Course Syllabus**: A document icon. Enabled: Statistics Tracking.
- Alabama Course Competency for BIO 104S**: A document icon.
- Prerecorded Lectures and Exams**: A folder icon.
- Laboratory Exercises and Exams**: A folder icon.


Success: Population Biology created.

## Laboratory Exercises and Exams


**Build Content** ▾ **Assessments** ▾ **Tools** ▾ **Partner Content** ▾


 **Evolution - Hardy-Weinberg - Speciation** ▾

 **Invertebrate Labs** ▾

 **Vertebrate Labs** ▾  
Availability: Item is hidden from students.

 **Fungi and Lichens** ▾  
Availability: Item is hidden from students.

 **Botany Labs** ▾  
Availability: Item is hidden from students.

 **Population Biology** ▾  
Availability: Item is hidden from students.

- Principles of Biology II (11516.202210)
- Home Page
- Information
- Content
- Discussions
- Groups
- Tools
- Help
- Course Management**
- Control Panel
- Content Collection
- Course Tools
- Evaluation
- Grade Center
- Users and Groups
- Customization
- Packages and Utilities
- Help





## Assessment Record

Program: Biology (BIO 201)

Assessment period: Fall 2020 – Summer 2021

### **Program or Department Mission:**

Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters

## **Course Student Learning Outcomes & Assessment Plan**

### **Biology 201 Course Level Assessment Rubric:**

---

### **Course Level Student Learning Outcomes Assessed**

1. Students will be able to identify the terminology used in anatomy and physiology
2. Students will be able to identify and recognize the distinct characteristics of the systems listed below
  - A. Integumentary System
  - B. Skeletal System
  - C. Muscular System
  - D. Nervous System
3. Students will recognize the relationship between structural organization and function
4. Student will define homeostasis and identify the role of homeostasis within and between appropriate systems
5. Students will identify the major structures of each system
  - A. Integumentary System

B. Skeletal System  
 C. Muscular System  
 D. Nervous System

Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence			Use of Results
SLO 1: Identify the terminology used in anatomy and physiology	Student learning outcomes were assessed by using <a href="#">a 16 question standardized multiple choice examination</a> at the end of the semester. A total of 2 questions (Q2 and Q3) were used to assess SLO1	Correct responses by 70% of the students for each SLO will be defined as a successful outcome.	Fall 2020	Jefferson	# students tested = 162 # correct = 265 % correct = 82%	<b><u>Observations/Changes</u></b>  We used vocabulary terms throughout each chapter to reinforce the regional and directional terms. (See additional materials BIO 201) As with our other course offerings, we noticed that there was a distinct increase in learning objective mastery when course materials were provided online (see additional course materials BIO 201).  <a href="#">Continuous use of vocabulary quizzes and vocabulary assignments will be utilized</a> to ensure students have a firm understanding of the language of Anatomy and Physiology.
				Shelby	# students tested = 159 # correct = 267 % correct = 84%	
				Clanton	# students tested = 40 # correct = 77 % correct = 96%	
				Pell City	# students tested = 99 # correct = 169 % correct = 85%	
			Spring 2021	Jefferson	# students tested = 56 # correct = 100 % correct = 89%	
				Shelby	# students tested = 120 # correct = 205 % correct = 85%	
				Clanton	# students tested = 39 # correct = 75 % correct = 96%	
				Pell City	# students tested = 61 # correct = 102 % correct = 84%	
			Summer 2021	Jefferson	# students tested = 43 # correct = 74 % correct = 86%	
				Shelby	# students tested = 82 # correct = 133 % correct = 81%	

				Clanton	# students tested = 24 # correct = 46 % correct = 96%	
				Pell City	# students tested = 9 # correct = 18 % correct = 100%	
			<b>Total Students Tested = 894</b> <b>Total Annual Success Rate = 86%</b>			
<p>SLO 2: Identify and recognize the distinct characteristics of the systems listed below</p> <p>A. Integumentary System</p> <p>B. Skeletal System</p> <p>C. Muscular System</p> <p>D. Nervous System</p>	<p>Student learning outcomes were assessed by <a href="#">using a 16 question standardized multiple choice examination</a> at the end of the semester. A total of 4 questions (Q5, Q8, Q11, and Q14) were used to assess SLO2</p>	<p>Correct responses by 70% of the students for each SLO will be defined as a successful outcome.</p>	Fall 2020	Jefferson	# students tested = 162 # correct = 573 % correct = 88%	<p><b>Observations/Changes</b></p> <p>We stressed the details of each organ system in both lecture and lab throughout the semester. As with our other course offerings, we noticed that there was a distinct increase in learning objective mastery when course materials were provided online (see additional course materials BIO 201).</p> <p>With the transitional back to traditional course offerings, we will <a href="#">make video recordings and online materials available to all students</a> and determine if this approach can have a similar effect on</p>
				Shelby	# students tested = 159 # correct = 545 % correct = 86%	
				Clanton	# students tested = 40 # correct = 155 % correct = 97%	
				Pell City	# students tested = 99 # correct = 384 % correct = 97%	
			Spring 2021	Jefferson	# students tested = 56 # correct = 218 % correct = 97%	
				Shelby	# students tested = 120 # correct = 393 % correct = 82%	
				Clanton	# students tested = 39 # correct = 151 % correct = 97%	
				Pell City	# students tested = 61 # correct = 233 % correct = 95%	
			Summer 2021	Jefferson	# students tested = 43 # correct = 170 % correct = 99%	

				Shelby	# students tested = 82 # correct =289 % correct = 88%	learning objective mastery in traditional sections.
				Clanton	# students tested = 24 # correct = 94 % correct = 98%	
				Pell City	# students tested = 9 # correct =33 % correct = 92%	
			<b>Total Students Tested = 894</b> <b>Total Annual Success Rate = 95%</b>			
SLO 3: Recognize the relationship between structural organization and function	Student learning outcomes were assessed by <a href="#">using a 16 question standardized multiple choice examination</a> at the end of the semester. A total of 4 question (Q1, Q7, Q9, Q13) was used to assess SLO3	Correct responses by 70% of the students for each SLO will be defied as a successful outcome.	Fall 2020	Jefferson	# students tested = 162 # correct =543 % correct = 84%	<b>Observations/Changes</b>  Faculty emphasized the relationship between structure and function (see additional course materials BIO 201). As with our other course offerings, we noticed that there was a distinct increase in learning objective mastery when course materials were provided online (see additional course materials BIO 201).  With the transitional back to traditional course offerings, <a href="#">we will make video</a>
				Shelby	# students tested = 159 # correct =495 % correct = 78%	
				Clanton	# students tested = 40 # correct =140 % correct = 88%	
				Pell City	# students tested = 99 # correct = 321 % correct = 81%	
			Spring 2021	Jefferson	# students tested = 56 # correct =196 % correct = 88%	
				Shelby	# students tested = 120 # correct = 360 % correct = 75%	
				Clanton	# students tested = 39 # correct = 136 % correct = 87%	
				Pell City	# students tested = 61 # correct = 194	

					% correct = 80%	<a href="#">recordings and online materials available</a> to all students and determine if this approach can have a similar effect on learning objective mastery in traditional sections.
			Summer 2021	Jefferson	# students tested = 43 # correct =159 % correct = 92%	
				Shelby	# students tested = 82 # correct =264 % correct = 80%	
				Clanton	# students tested =24 # correct =84 % correct = 88%	
				Pell City	# students tested = 9 # correct =34 % correct = 94%	
			<b>Total Students Tested = 894</b> <b>Total Annual Success Rate = 82%</b>			
SLO 4: Define homeostasis and identify the role of homeostasis within and between appropriate systems	Student learning outcomes were assessed <a href="#">by using a 16 question standardized multiple choice examination</a> at the end of the semester. A total of 2 questions (Q15 and Q16) were used to assess SLO4	Correct responses by 70% of the students for each SLO will be defied as a successful outcome.	Fall 2020	Jefferson	# students tested = 162 # correct =303 % correct = 94%	<b><u>Observations/Changes</u></b>  Homeostasis is a concept that underlies the entirety of the course. We stressed the importance of homeostasis in each organ system (see additional course materials BIO 201).  Homeostasis will continue to be stressed throughout the semester. <a href="#">Examples will be provided in each unit</a> of how the individual
				Shelby	# students tested = 159 # correct =299 % correct = 94%	
				Clanton	# students tested = 40 # correct = 75 % correct = 94%	
				Pell City	# students tested = 99 # correct =183 % correct = 92%	
			Spring 2021	Jefferson	# students tested = 56 # correct = 106 % correct = 95%	
				Shelby	# students tested = 120 # correct = 220 % correct = 92%	
				Clanton	# students tested = 39 # correct = 73	

					% correct = 94%	organ systems work to maintain homeostasis.
				Pell City	# students tested = 61 # correct =106 % correct = 87%	
			Summer 2021	Jefferson	# students tested = 43 # correct = 82 % correct = 95%	
				Shelby	# students tested = 82 # correct = 153 % correct = 93%	
				Clanton	# students tested = 24 # correct =45 % correct = 100%	
				Pell City	# students tested = 9 # correct =18 % correct = 100%	
			<b>Total Students Tested = 894</b> <b>Total Annual Success Rate = 93%</b>			
SLO 5: Identify the major structures of each system A.Integumentary System B.Skeletal System C.Muscular System D.Nervous System	Student learning outcomes were assessed by <a href="#">using a 16 question standardized multiple choice examination</a> at the end of the semester. A total of 4 questions (Q4, Q6, and Q10, Q12) were used to assess SLO5	Correct responses by 70% of the students for each SLO will be defied as a successful outcome.	Fall 2020	Jefferson	# students tested = 162 # correct =573 % correct = 88%	<b>Observations/Changes</b>  We worked to emphasize the major structures of each organ system and focus on the relationship between structure and function. (See additional course materials BIO 201) As with our other course offerings, we noticed that there was a distinct increase in learning objective mastery when course
				Shelby	# students tested = 159 # correct = 470 % correct = 74%	
				Clanton	# students tested = 40 # correct = 153 % correct = 96%	
				Pell City	# students tested = 99 # correct = 340 % correct = 86%	
			Spring 2021	Jefferson	# students tested = 56 # correct = 204 % correct = 91%	
				Shelby	# students tested = 120 # correct = 368	

					% correct = 77%	<p>materials were provided online (see additional course materials BIO 201).</p> <p>With the transitional back to traditional course offerings, <a href="#">we will make video recordings and online materials available to all students</a> and determine if this approach can have a similar effect on learning objective mastery in traditional sections. In particular, we will make <a href="#">available to students' recordings of instructors reviewing the anatomical lab models</a>. These will be available for students to access at all times.</p>
			Clanton		# students tested = 39 # correct =149 % correct = 96%	
			Pell City		# students tested = 61 # correct = 204 % correct = 84%	
		Summer 2021	Jefferson		# students tested = 43 # correct = 159 % correct = 92%	
			Shelby		# students tested = 82 # correct = 245 % correct = 75%	
			Clanton		# students tested = 24 # correct =91 % correct = 95%	
			Pell City		# students tested =9 # correct = 29 % correct = 81%	
			<p><b>Total Students Tested = 894</b> <b>Total Annual Success Rate = 83%</b></p>			
<p><b>Plan submission date:</b></p>			<p><b>Submitted by:</b></p>			

Additional Materials for BIO 201

SLO 1 - vocab terms used throughout semester, emphasis on structure/function, access to online materials Three vocabulary quizzes were given over the semester to ensure students met SLO 1. All other exams incorporate these terms as well. Resources were made available online.

<b>Lecture Exams</b>	3 Exams (100 points each)	300 points
<b>Lab Exams</b>	3 Exams (100 points each)	300 points
<b>Nervous Lab quiz</b>	50 points	50 points
<b>Lecture Final</b>		200 points
<b>Vocabulary Quizzes</b>	<p><b>Biomedical Word Elements</b> (file located in Blackboard)</p> <p><b>Quiz 1:</b> prefixes: a- to -dys suffixes: -able to -dips</p> <p><b>Quiz 2:</b> prefixes: e- to oxy- suffixes: -ectomy to -ory</p> <p><b>Quiz 3:</b> prefixes: palli- to -zygo suffixes: -pathy to -zyme</p> <p>(30 pts per quiz)</p>	90 points
<b>Case studies</b>	2 over the course of the semester	20 points total
<b>Syllabus Quiz</b>	10 points	10 points
<b>TOTAL</b>		<b>970</b>



bb9.jeffersonstate.edu/ultra/courses/\_45080\_1/c/outline

- Start Here**  
Enabled: Statistics Tracking
- Syllabus**  
Enabled: Statistics Tracking  
Attached Files: Syllabus\_BIO\_201 Summer 2021 (4).doc (67 KB)
- Vocabulary Master List**  
Enabled: Statistics Tracking  
Attached Files: Vocab Master List.pdf (3.645 MB)  
This is the Vocabulary Master List found on the last page in the back of your textbook. The vocab quizzes will cover both the prefixes and suffixes. Below is the guide to what prefixes/suffixes will be covered or which quiz. Please refer to your syllabus for dates of each quiz.  
Quiz 1: prefixes: a- to -dys suffixes: -able to -dips  
Quiz 2: prefixes: e- to oxy- suffixes: -ectomy to -ory  
Quiz 3: prefixes: palli- to -zygo suffixes: -pathy to -zyme  
(30 pts per quiz)

Vocab assignments specific to the chapter being covered were assigned throughout the semester. These assignments can be seen due on Saturdays in this example.

Pearson Sign In | Mail - Amanda Swindall - Outlook | Course Home  
 openvillum.ecollege.com/course.html?courseId=16520052&OpenVillumHMAC=0633361b98a62576c5b47392bd38f07b#10001

BIO 201 Spring 2021 Friday

Hi, Amanda | Sign Out | Help

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**Mastering A&P**

- My Courses
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- Syllabus
- Scores
- eText
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- Course Tools
- Instructor Resources
- Instructor Tools

Course Home

⚡ 5 assignments have had items removed as a result of ongoing content improvements. [Show assignments](#)

All Assignments

- Intro to DSMs How Dynamic Study Modules Work Dynamic Study Module 01/11/21
- Introduction to Mastering Anatomy and Physiology 01/11/21
- Ch. 01 Module 1: Sections 1.01-1.02 Dynamic Study Module 01/12/21
- Ch. 01 Module 2: Sections 1.03-1.04 Dynamic Study Module 01/12/21
- Ch. 01 Module 3: Sections 1.05-1.06 Dynamic Study Module 01/14/21
- Ex. 01: Pre-lab: Introduction to Anatomy and Physiology 01/16/21
- Ex. 03: Best of Homework - The Microscope 01/16/21

**April 2021**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30 Ch-09_Muscle...	31	1 Ch-09_Muscle... Ch. 10 Modul...	2	3 Vocab 7
4	5	6	7	8	9	10 + Muscles of L... + Muscles of L... Vocab 8
11	12	13 Ch. 11 Modul... Ch. 11 Modul...	14	15 Ch. 11 Modul... Ch. 11 Modul...	16	17
18	19	20 Ch. 12 Modul... Ch. 12 Modul...	21	22 Ch. 13 Modul... Ch. 13 Modul...	23	24 + Brain and Ne...
25	26	27 Ch. 14 Modul...	28	29 Ch. 15 Modul... Ch. 15 Modul...	30	1 + Eye and Ear... Vocab 9
2	3	4	5	6	7	8

**Mastering A&P**  
with Adaptive Follow-Ups

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Human Anatomy and Physiology, 11e  
 Marieb/Hoehn  
 swindall08151  
 Ends: 05/07/21

Assignment calendar showing weekly vocabulary assignments. Please see below for example of Vocab 7 Assignments seen due on April 3, 2021 above.

Course Home  
MasteringAandP: Vocab 7 - Google Chrome  
session.masteringaandp.com/myct/itemView?assignmentProblemID=184366074&attemptNo=1

BIO 201 Spring 2021 Friday

Item Details Contact the Publisher Standard View

< Vocab 7 - Attempt 1

Building Vocabulary: The Muscular System 1 of 1

Part A - Prefixes, Roots, and Suffixes

Match these prefixes to their meanings.

Reset Help

stylo-	The prefix <input type="text"/> means arm.
gloss-	The prefix <input type="text"/> means tongue.
brevi-	The prefix <input type="text"/> means stalk or stylus.
semi-	The prefix <input type="text"/> means partial or half.
brachi-	The prefix <input type="text"/> means short.

Submit Request Answer

Part B - Vocabulary Terms

Match these vocabulary terms to their meanings.

Reset Help

hypoglossus	The muscle extending from the arm to the lateral forearm is the <input type="text"/> .
peroneus brevis	The shorter of the muscles over the fibula is the <input type="text"/> .
semitendinosus	The muscle connecting the hyoid bone to the styloid process of the temporal bone is the <input type="text"/> .

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Vocab 7 Assignment showing review of muscle system terms.

The screenshot displays a course management system interface. On the left is a dark purple sidebar with a navigation menu. The main content area is titled "Intro to Anatomy videos" and contains a video player for "Anatomical Terminology". The video player shows a woman standing in front of a whiteboard with the words "Anatomical Terminology" written on it. The video is at the 0:00 mark of a 7:18 duration. Below the video player is a download link for the video file.

**Human Anatomy Physiology I (10476.202210)**

- Home Page
- Tools
- Help
- START HERE!!!**
- Welcome Video
- Syllabus
- Syllabus/attendance verification quiz
- Course Books**
- Textbook
- Lab Book

Intro to Anatomy videos

Build Content Assessments Tools Partner Content

Anatomical Terminology

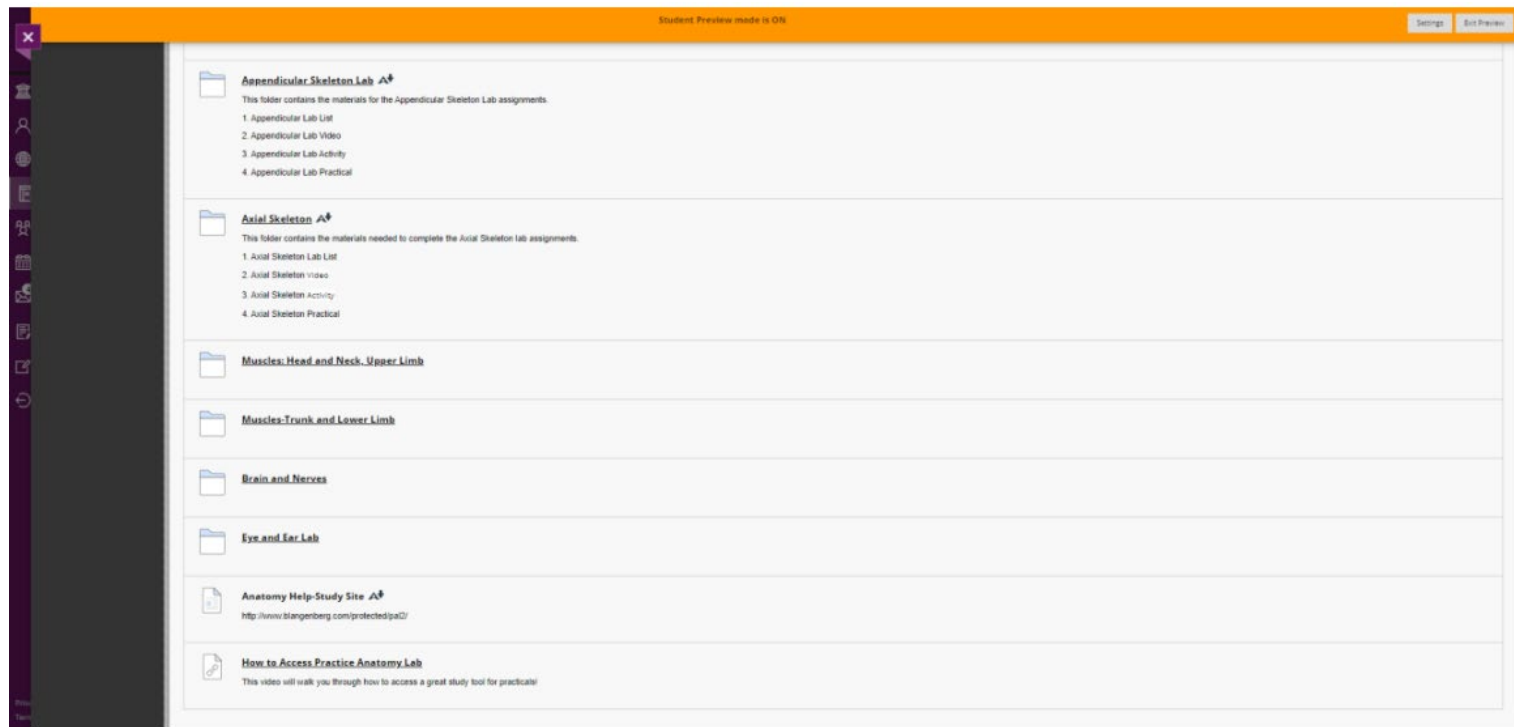
0:00 / 7:18

- Download video file: [6EF094D1-8A26-4740-943D-48457EB0CCD8.MOV](#)

Example of an instructor's short video on Anatomical Terminology

## SLO 2

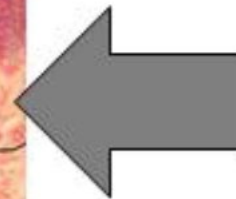
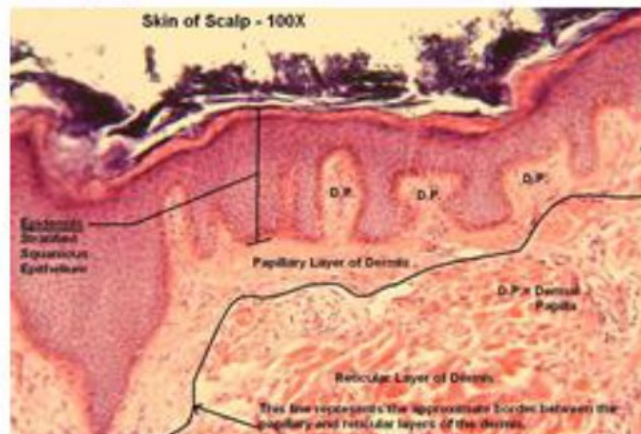
Lecture and lab components worked to stress the structure and function of covered systems. Mastering A&P assignments were given to reiterate through adaptive learning modules information covered in class. Please see image above for evidence of those assignments. Access to Practice Anatomy Lab was available through Mastering A&P. This is an interactive AP atlas. This atlas was used in presenting material and in assessing student learning.



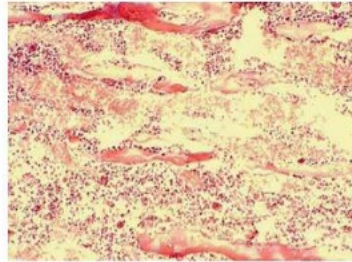
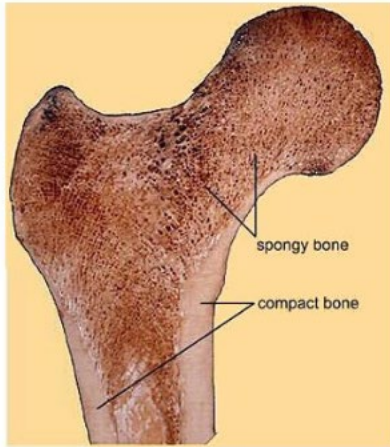
SLO 3 – Examples of structure/function being stressed in lecture

## Dermal Papillae

- In thick skin lie atop dermal ridges that cause epidermal ridges
  - Collectively ridges called **friction ridges**
    - Enhance gripping ability
    - Contribute to sense of touch
    - Pattern is fingerprints



## Spongy Bone



- ossified trabeculae are thin and surrounded by bone marrow and blood vessels
- Osteons are mostly absent, and the spaces between spicules are filled with hemopoietic tissue

Example of structure and function relationship from tissue lecture.

The screenshot shows a course management interface. On the left is a dark purple sidebar with a 'Course Management' menu containing options like 'Control Panel', 'Content Collection', 'Course Tools', 'Evaluation', 'Grade Center', 'Users and Groups', 'Customization', 'Packages and Utilities', and 'Help'. The main area displays a video player titled 'Structure and Function'. The video shows a woman standing next to a human skeleton in front of a whiteboard with the title 'Structure and Function' written on it. The video player includes a play button, a progress bar at 0:00 / 3:27, and a download link: [68AC6D5B-5102-4ABC-B566-1F6DA7AA1D5A.MOV](#).

Example of an instructor's short video discussing the relationship between structure and function

SLO 4

The screenshot shows a course management interface. On the left is a dark purple sidebar. The main area displays a video player titled 'Homeostasis'. The video shows a woman standing in front of a whiteboard with the title 'Homeostasis' written on it. The video player includes a play button, a progress bar at 0:00 / 3:23, and a download link: [0282877F-2913-482D-A7D5-4D6C12BFBCA2.MOV](#).

Example of an instructor's short video reviewing homeostasis.



bb9.jeffersonstate.edu/ultra/courses/\_45708\_1/cl/outline

Human Anatomy Physiology I 10486.202210 Content CASE STUDIES

**CASE STUDIES**

Build Content Assessments Tools Partner Content

**Osteoporosis**  
Availability: Item is hidden from students.  
Enabled: Statistics Tracking

**Wearing on her Nerves**  
Enabled: Statistics Tracking  
Attached Files: [Wearing on Her Nerves- Case Study.docx](#) (150.007 KB)  
Please read the following case study and respond to the questions. Email the file to me when complete. This case study is due by 7/30/2021.

Example of case studies used to highlight homeostatic imbalances in disease

### Clinical – Homeostatic Imbalance 7.4

- Congenital abnormalities may distort skull
- **Cleft palate** is the most common condition
  - No medial fusion of right and left halves of palate
  - Interferes with sucking
  - Can lead to aspiration of food into lungs, which may result in *aspiration pneumonia*

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Example of how homeostasis is incorporated into lecture

SLO 5

\* Indicates a required field.

**WEB LINK INFORMATION**

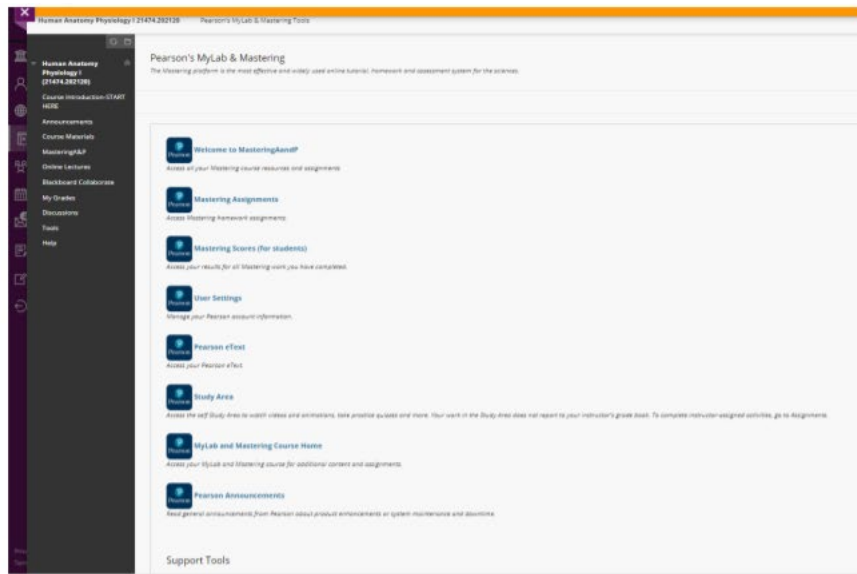
\* Name

\* URL   
*For example, <http://www.myschool.edu/>*

This link is to a Tool Provider. [What's a Tool Provider?](#)

Virtual pig dissection link.

Example of a virtual pig dissection provided to students



Use of the practice anatomy labs provided with the Pearson Mastering A&P online platform

Human Anatomy Physiology I 10476.202210 Unit 2 Materials Unit 2 Lab Videos

Unit 2 Lab Videos

Build Content Assessments Tools Partner Content

- [The Skull](#) Enabled: Statistics Tracking
- [The Vertebral Column](#) Enabled: Statistics Tracking
- [Vertebrae](#) Enabled: Statistics Tracking
- [Thoracic cage](#) Enabled: Statistics Tracking
- [Pectoral Girdle](#) Enabled: Statistics Tracking
- [Upper appendage](#) Enabled: Statistics Tracking

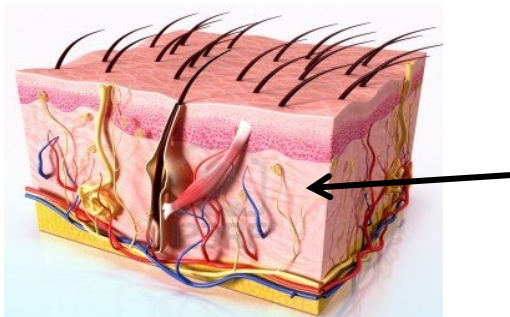
11:03 AM 9/22/2021

Example of lab videos provided for students to access at anytime

SLO Assessment given to students:

Biology 201 Comprehensive Survey

1. **(SLO3A)** \_\_\_\_\_ is a group of cells that are similar in structure and perform a common function.
  - a. Organ
  - b. Organelle
  - c. Tissue
  - d. System
  - e. Organism
  
2. **(SLO1A)** Based on what you know about anatomical terminology, the term subcutaneous means \_\_\_\_\_?
  - a. The study of the skin
  - b. Break down the skin
  - c. Below the skin
  - d. Around the skin
  
3. **(SLO1B)** The ear is \_\_\_\_\_ to the eye.
  - a. Superior
  - b. Medial
  - c. Inferior
  - d. Lateral
  - e. Anterior



4. (SLO5A) The arrow is pointing to the \_\_\_\_\_ layer of the skin.
- Hypodermis
  - Dermis
  - Epidermis
  - Subcutaneous fat
  - Areolar

5. (SLO2A) The cell that produces melanin is called
- Keratinocyte
  - Melanocyte



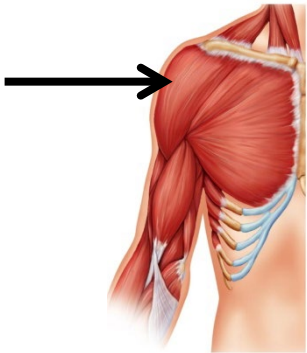
6. (SLO5B) The above bone is called the
- Femur
  - Humerus
  - Radius
  - Tibia
  - Fibula

7. (SLO3B) In the sliding filament model of muscle contraction, the cross bridge cycle occurs when the myosin head binds to the active site on \_\_\_\_\_.
- Sarcoplasmic Reticulum
  - Actin
  - Sarcomere
  - Troponin
  - Calcium

8. (SLO2B) The cell type responsible for building bone is \_\_\_\_\_.
- Myocyte
  - Chondrocyte
  - Osteoclast

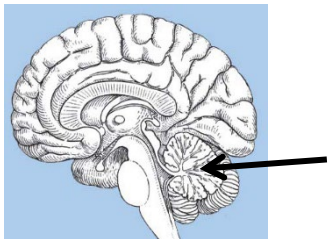
d. Osteoblast

9. (SLO3) The triceps brachii is the antagonist for the
- Orbicularis oculi
  - Palmaris longus
  - Soleus
  - Biceps brachii



10. (SLO5C) The muscle the arrow is pointing to is the
- Biceps femoris
  - Deltoid
  - Pectoralis minor
  - Biceps brachii
  - Trapezius

11. (SLO2C) The neurotransmitter released at the neuromuscular junction for skeletal muscle contraction is \_\_\_\_\_.
- Acetylcholine (ACh)
  - Dopamine
  - Acetylcholinesterase (AChE)
  - Myosin





12. **(SLO5D)** The arrow is pointing to which structure in the brain?
- Corpus callosum
  - Cerebellum
  - Midbrain
  - Pons
  - Thalamus
13. **(SLO3C)** The pelvic girdle lacks the mobility of the \_\_\_\_\_, but is far more stable due to the acetabulum and strong ligaments.
- Radius and ulna
  - Vertebral column
  - Pectoral girdle
  - Pubic bone
14. **(SLO2D)** There are \_\_\_\_ pairs of cranial nerves.
- 2
  - 7
  - 12
  - 31
15. **(SLO4)** \_\_\_\_\_ is the ability of the body to maintain stable internal conditions.
- Refraction
  - Regeneration
  - Maximum potential
  - Homeostasis
16. **(SLO4)** Which of the following is NOT one of the 3 parts of a feedback loop?
- Centriole
  - Effector
  - Control center
  - Receptor
  - Effector



## Assessment Record

Program: Biology (BIO 202)

Assessment period: Fall 2020- Summer 2021

### Program or Department Mission:

Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters.

## Course Student Learning Outcomes & Assessment Plan

### Biology 202 Course Level Assessment Rubric:

#### Course Level Student Learning Outcomes Assessed

1. Students will define and describe the systems listed below.
  - A. Endocrine System
  - B. Cardiovascular System
  - C. Lymphatic and Immune System
  - D. Respiratory System
  - E. Digestive System
  - F. Urinary System
  - G. Reproductive System
2. Students will define homeostasis and identify the role of homeostasis within and between appropriate systems.
3. Students will be able to recognize the major structures of each system listed below.
  - A. Endocrine System
  - B. Cardiovascular System

- C. Lymphatic and Immune System
- D. Respiratory System
- E. Digestive System
- F. Urinary System
- G. Reproductive System

Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence			Use of Results																					
1: Define and describe the systems listed below. <ul style="list-style-type: none"> <li>A. Endocrine System</li> <li>B. Cardiovascular System</li> <li>C. Lymphatic and Immune System</li> <li>D. Respiratory System</li> <li>E. Digestive System</li> <li>F. Urinary System</li> <li>G. Reproductive System</li> </ul>	Student learning <a href="#">outcomes</a> <a href="#">were assessed by using a 12 question standardized multiple choice examination</a> at the end of the semester. A total of five questions (Q2, Q4, Q7, Q8, Q12) were used to assess SLO1.	70% or > successful 69% or < unsuccessful The percent is based upon the average of correctly answered questions related to SLO 1.	<table border="1"> <tbody> <tr> <td data-bbox="884 558 1056 672">Fall 2020</td> <td data-bbox="1056 558 1232 672">Jefferson</td> <td data-bbox="1232 558 1625 672"># students tested = 53 #correct = 224 % correct = 85%</td> </tr> <tr> <td data-bbox="884 672 1056 781"></td> <td data-bbox="1056 672 1232 781">Shelby</td> <td data-bbox="1232 672 1625 781"># students tested = 98 #correct = 412 % correct = 84%</td> </tr> <tr> <td data-bbox="884 781 1056 889"></td> <td data-bbox="1056 781 1232 889">Pell City</td> <td data-bbox="1232 781 1625 889"># students tested = 38 #correct = 150 % correct = 79%</td> </tr> <tr> <td data-bbox="884 889 1056 998">Spring 2021</td> <td data-bbox="1056 889 1232 998">Jefferson</td> <td data-bbox="1232 889 1625 998"># students tested = 97 #correct = 429 % correct = 88%</td> </tr> <tr> <td data-bbox="884 998 1056 1107"></td> <td data-bbox="1056 998 1232 1107">Shelby</td> <td data-bbox="1232 998 1625 1107"># students tested = 122 #correct = 476 % correct = 78%</td> </tr> <tr> <td data-bbox="884 1107 1056 1216"></td> <td data-bbox="1056 1107 1232 1216">Pell City</td> <td data-bbox="1232 1107 1625 1216"># students tested = 77 #correct = 317 % correct = 82%</td> </tr> <tr> <td data-bbox="884 1216 1056 1325">Summer 2021</td> <td data-bbox="1056 1216 1232 1325">Shelby</td> <td data-bbox="1232 1216 1625 1325"># students tested = 84 #correct = 333 % correct = 79%</td> </tr> </tbody> </table> <p data-bbox="884 1360 1281 1430"><b>Total Students Tested = 569</b> <b>Total Annual Success Rate = 82%</b></p>			Fall 2020	Jefferson	# students tested = 53 #correct = 224 % correct = 85%		Shelby	# students tested = 98 #correct = 412 % correct = 84%		Pell City	# students tested = 38 #correct = 150 % correct = 79%	Spring 2021	Jefferson	# students tested = 97 #correct = 429 % correct = 88%		Shelby	# students tested = 122 #correct = 476 % correct = 78%		Pell City	# students tested = 77 #correct = 317 % correct = 82%	Summer 2021	Shelby	# students tested = 84 #correct = 333 % correct = 79%	<p data-bbox="1654 558 1934 597"><b><u>Observations/Changes</u></b></p> <p data-bbox="1654 634 1934 1240">We worked to provide students with materials that they can access at home. As a department we noticed a distinct trend, where students learning objective mastery increased with the transition to online learning. The department would like to keep <a href="#">continual access to course materials and lectures</a>. (See Bio 202 additional Materials)</p> <p data-bbox="1654 1278 1934 1451">With the transition back to traditional courses, we want to see how the availability of online</p>
Fall 2020	Jefferson	# students tested = 53 #correct = 224 % correct = 85%																									
	Shelby	# students tested = 98 #correct = 412 % correct = 84%																									
	Pell City	# students tested = 38 #correct = 150 % correct = 79%																									
Spring 2021	Jefferson	# students tested = 97 #correct = 429 % correct = 88%																									
	Shelby	# students tested = 122 #correct = 476 % correct = 78%																									
	Pell City	# students tested = 77 #correct = 317 % correct = 82%																									
Summer 2021	Shelby	# students tested = 84 #correct = 333 % correct = 79%																									

resources (lectures, lab videos, publisher online platforms) improves learning objective mastery in the students returning to the traditional classroom.

**Observations/Changes**

We continued to stress the importance of homeostasis in each chapter and with each organ system. (See additional Materials BIO 202)

Homeostasis will continue to be stressed throughout the semester. [Examples will be provided in each unit of how the individual organ systems work to maintain homeostasis](#)

Fall 2020	Jefferson	# students tested = 53 #correct = 102 % correct = 96%
	Shelby	# students tested = 98 #correct = 174 % correct = 89%
	Pell City	# students tested = 38 #correct = 74 % correct = 97%
Spring 2021	Jefferson	# students tested = 97 #correct = 188 % correct = 97%
	Shelby	# students tested = 122 #correct = 208 % correct = 85%
	Pell City	# students tested = 77 #correct = 143 % correct = 93%
Summer 2021	Shelby	# students tested = 84 #correct = 148 % correct = 88%

**Total Students Tested = 569**  
**Total Annual Success Rate = 91%**

2: Define homeostasis and identify the role of homeostasis within and between appropriate systems.

Student learning [outcomes were assessed by using a 12 question standardized multiple choice examination](#) at the end of the semester. A total of 2 questions (Q1 and Q6) were used to assess SLO2.

70% or > successful  
69% or < unsuccessful  
The percent is based upon the average of correctly answered questions related to SLO2.

<p>3: Students will be able to recognize the major structures of each system listed below.</p> <ul style="list-style-type: none"> <li>A. Endocrine System</li> <li>B. Cardiovascular System</li> <li>C. Lymphatic and Immune System</li> <li>D. Respiratory System</li> <li>E. Digestive System</li> <li>F. Urinary System</li> <li>G. Reproductive System</li> </ul>	<p>Student learning outcomes <a href="#">were assessed by using a 12 question standardized multiple choice examination</a> at the end of the semester. A total of 5 questions (Q3, Q5 and Q9-Q11) were used to assess SLO3.</p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions related to SLO3.</p>	<table border="1"> <tr> <td>Fall 2020</td> <td>Jefferson</td> <td># students tested = 53 #correct = 245 % correct = 92%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 98 #correct = 438 % correct = 89%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students tested = 0 #correct = % correct =</td> </tr> <tr> <td></td> <td>Pell City</td> <td># students tested = 38 #correct = 160 % correct = 84%</td> </tr> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students tested = 97 #correct = 453 % correct = 93%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students tested = 122 #correct = 451 % correct = 74%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students tested = 0 #correct = % correct =</td> </tr> <tr> <td></td> <td>Pell City</td> <td># students tested = 77 #correct = 337 % correct = 88%</td> </tr> <tr> <td>Summer 2021</td> <td>Shelby</td> <td># students tested = 84 #correct = 367 % correct = 87%</td> </tr> </table>			Fall 2020	Jefferson	# students tested = 53 #correct = 245 % correct = 92%		Shelby	# students tested = 98 #correct = 438 % correct = 89%		Clanton	# students tested = 0 #correct = % correct =		Pell City	# students tested = 38 #correct = 160 % correct = 84%	Spring 2021	Jefferson	# students tested = 97 #correct = 453 % correct = 93%		Shelby	# students tested = 122 #correct = 451 % correct = 74%		Clanton	# students tested = 0 #correct = % correct =		Pell City	# students tested = 77 #correct = 337 % correct = 88%	Summer 2021	Shelby	# students tested = 84 #correct = 367 % correct = 87%	<p><b><u>Observations/Changes Based on Previous Cycle (19/20)</u></b> We continued to teach organ system identification in lab. We also worked to provide students with materials that they can access at home. As a department we noticed a distinct trend, where students learning objective mastery increased with the transition to online learning. This could be due to continual access to course materials and lectures.</p> <p><b><u>Observations/Changes Based on Current Cycle (20/21)</u></b> With the transitional back to traditional course offerings, we will <a href="#">make video recordings and online materials available to all students</a> and determine if this approach can have a similar effect on learning objective mastery in traditional sections. In</p>
Fall 2020	Jefferson	# students tested = 53 #correct = 245 % correct = 92%																															
	Shelby	# students tested = 98 #correct = 438 % correct = 89%																															
	Clanton	# students tested = 0 #correct = % correct =																															
	Pell City	# students tested = 38 #correct = 160 % correct = 84%																															
Spring 2021	Jefferson	# students tested = 97 #correct = 453 % correct = 93%																															
	Shelby	# students tested = 122 #correct = 451 % correct = 74%																															
	Clanton	# students tested = 0 #correct = % correct =																															
	Pell City	# students tested = 77 #correct = 337 % correct = 88%																															
Summer 2021	Shelby	# students tested = 84 #correct = 367 % correct = 87%																															
<p><b>Total Students Tested = 569</b> <b>Total Annual Success Rate = 86%</b></p>																																	

				particular, we will make available to students' recordings of instructors reviewing the anatomical lab models. These will be available for students to access at all times.
<b>Plan submission date:</b>			<b>Submitted by:</b>	

BIO 202 Additional Materials

SLO 1

The screenshot displays a Blackboard course interface. The top navigation bar includes the course title "Human Anatomy Physiology II 21592.202120" and the page title "Course Materials". On the left, a dark navigation menu lists various course and system options. The main content area, titled "Course Materials", contains a list of links, each accompanied by a folder icon. The links are: "Online Lectures" (with a document icon), "BIO 202 Intro Materials", "Exam #1 Lectures", "Exam #2 Lectures", "Exam #3 Lectures", "Final Exam Lectures", "Lab Resources", and "Exams".

Human Anatomy Physiology II 21592.202120 Course Materials

Human Anatomy Physiology II (21592.202120)

- Course Introduction-START HERE
- Announcements
- Course Materials
- MasteringA&P
- Blackboard Collaborate
- My Grades
- Home Page
- Discussions
- Tools
- Help

Course Materials

- [Online Lectures](#)
- [BIO 202 Intro Materials](#)
- [Exam #1 Lectures](#)
- [Exam #2 Lectures](#)
- [Exam #3 Lectures](#)
- [Final Exam Lectures](#)
- [Lab Resources](#)
- [Exams](#)

- Human Anatomy Physiology II
  - Course Introduction-START HERE
  - Announcements
  - Course Materials
  - Relay Online Lectures
  - Blackboard Collaborate
  - My Grades
  - Home Page
  - Discussions
  - Tools
  - Help
- Course Management
  - Control Panel
    - Content Collection
    - Course Tools
    - Evaluation
    - Grade Center
    - Users and Groups
    - Customization
    - Packages and Utilities
    - Help

### Exam #1 Lectures

Build Content Assessments Tools Partner Content

**Special Senses** Availability: Item is hidden from students.  
Attached Files: Special Senses (5.858 MB)  
This is the powerpoint that will be used for Lectures Special Senses Part 1 and Part 2

**Autonomic Nervous System**  
Attached Files: Autonomic Nervous System-AFS.ppt (2.89 MB)

**Endocrine Part 1**  
Attached Files: Endocrine Part 1-2017.pptx (12.771 MB)  
You will use this powerpoint for Endocrine Part 1a and Endocrine Part 1b.

**Endocrine Part 2**  
Attached Files: Endocrine Part 2-2017.pptx (51.107 MB)  
You will use this powerpoint for Endocrine Part 2a, 2b, and 2c.

**RAAS**

**RAAS Comic**  
Attached Files: RAAS.jpg (179.467 KB)




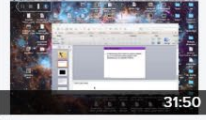
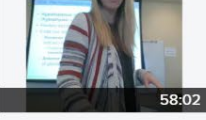




Human Anatomy Physiology II Course Materials Online Lectures

## Exam 1 Lectures

< BIO 202

Date | [Title](#) | Views

	<b>Autonomic Nervous System.mp4</b> 198 Views   a year ago 32:44
	<b>Endocrine Part 1a.mp4</b> 144 Views   a year ago 31:50
	<b>Endocrine Part 1b.mp4</b> 178 Views   a year ago 58:02
	<b>Endocrine Part 2a.mp4</b> 134 Views   a year ago 48:12
	<b>Endocrine Part 2b.mp4</b> 82 Views   a year ago 27:21

Examples of course materials available throughout the semester (Both lecture material and lecture video).

## Clinical – Homeostatic Imbalance 16.2

- Hypersecretion of GH is usually caused by anterior pituitary tumor
  - In children results in **gigantism**
    - Can reach heights of 8 feet
  - In adults results in **acromegaly**
    - Overgrowth of hands, feet, and face
- Hyposecretion of GH
  - In children results in **pituitary dwarfism**
    - May reach height of only 4 feet
  - In adults usually causes no problems



Figure 16.8 Disorders of pituitary growth hormone.

Example of the concept of homeostasis embedded in lecture

The screenshot shows a web browser window with three tabs: 'Faculty Home', 'Content', and 'o365\_Jeff State Biology Departm...'. The address bar shows the URL 'bb9.jeffersonstate.edu/ultra/courses/\_45758\_1/cl/outline'. The page title is 'Human Anatomy Physiology II 10544.202210' with sub-sections 'Lecture and Lab Materials' and 'Case Studies'. A navigation sidebar on the left includes 'Human Anatomy Physiology II (10544.202210)', 'Home Page', 'Tools', 'Help', 'START HERE!!!', 'Welcome Video', 'Syllabus', 'Syllabus Quiz', 'Frequently Asked Questions', 'Course Materials', 'Anatomy Text Book', 'Anatomy Lab Resource', 'Lecture and Lab Materials', 'Exams', and 'Course Grades'. The main content area is titled 'Case Studies' and contains four items, each with a document icon, a red refresh icon, and a dropdown arrow: 'Endocrine Case Study', 'Cardiovascular Case Study', 'Immune System', and 'Acid-base balance / renal function'. The Windows taskbar at the bottom shows the time as 11:18 AM on 9/22/2021.

Example of case studies being utilized to enforce the concept of homeostasis

SLO 3

The screenshot shows a Blackboard LMS interface for a course titled 'Human Anatomy Physiology II 21592.202120'. The course page is titled 'Endocrine Anatomy' and contains several content items:

- Endocrine Anatomy Instructions**: A document icon with a lock symbol. The text reads: 'This week for lab: 1. complete the Endocrine Anatomy Assignment (due Saturday @ 11:59pm CT) linked below. 2. Watch the Endocrine Anatomy Video. This video will cover the items on the Endocrine Anatomy ID list. (VIDEO COMING SOON-My internet is not cooperating today). 3. Use the Endocrine Anatomy powerpoint or Practice Anatomy Lab (located in the Study Area of Mastering A&P) to learn to identify items on the human cadaver from the Endocrine Anatomy ID list. 4. Take the Endocrine Anatomy Practical (this practical will be a fill-in-the-blank identification of the cadaver images covered in the videolist. (Will be posted early next week in this folder))'.
- Endocrine Anatomy Assignment**: A Pearson logo icon. The text reads: 'Access your MasteringAandP assignment'.
- Endocrine Anatomy Video**: A document icon with a lock symbol. The text reads: 'This is a video walkthrough with identification of each of the terms from the Endocrine Anatomy List'.
- Endocrine Anatomy Identification List**: A document icon with a lock symbol. The text reads: 'Attached File: Endocrine Anatomy Identification List.docx (12.271 KB) Use this list to learn the items listed for your Endocrine Anatomy Practical'.
- Endocrine Anatomy Images from PAL**: A document icon with a lock symbol. The text reads: 'Attached File: PAL3\_Cadaver\_Endocrine\_UL.ppt (1.586 MB)'.
- How to Access Practice Anatomy Lab**: A document icon with a lock symbol.
- Endocrine Anatomy Practical**: A document icon with a lock symbol. The text reads: 'This practical will cover items from the Endocrine Anatomy Identification List. questions and you will have 10 minutes to complete the test. It will not allow you to restart once you access the test.' A 'Zoom' callout bubble is positioned over this item.

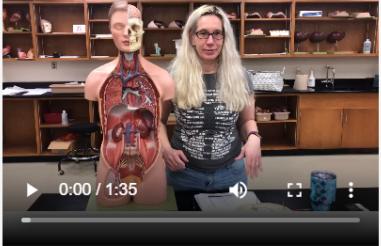
Example of an online lab for an organ system including video, identification list, access to the Practice Anatomy Lab Tutorial, and assessment

Human Anatomy Physiology II 10544.202210    Lecture and Lab Materials    Lab Videos    Edit Mode Is: ON

Lab Videos

Build Content    Assessments    Tools    Partner Content

**Endocrine System**



0:00 / 1:35

- Download video file: [trim.6A7A1BEC-1161-4C4F-98C3-EC96169CB378.MOV](#)

**Endocrine Histology**  
Enabled: Statistics Tracking

**The Heart**

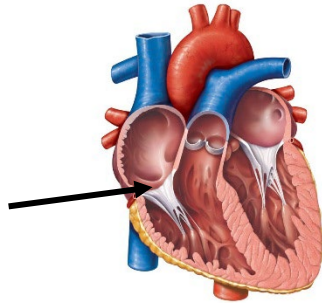
Windows taskbar: 11:23 AM 9/22/2021

Example of lab videos provided to students in blackboard. Videos are available throughout the semester

SLO Assessment for BIO 202:

Biology 202 Comprehensive Survey

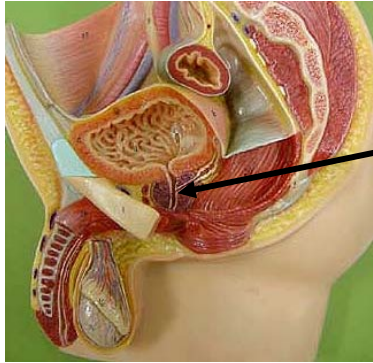
1. **(SLO2)** Blood calcium homeostasis is maintained by
  - A. Calcitonin and parathyroid hormone
  - B. Renin and aldosterone
  - C. Insulin and glycogen
  - D. Angiotensin I and Angiotensin II
  
2. **(SLO1A)** Increasing aldosterone increases
  - A. Blood Calcium concentration
  - B. Metabolism
  - C. Lactation
  - D. Blood pressure
  
3. **(SLO 3B)** The arrow is pointing to the



- A. Bicuspid/Mitral valve
  - B. Tricuspid valve
  - C. Pulmonary semilunar valve
  - D. Aortic semilunar valve
- 
4. **(SLO 1F)** Which of the following is highly reabsorbed in the kidney?
    - A. Waste

- B. Drugs
- C. Water
- D. Impossible to predict without more information

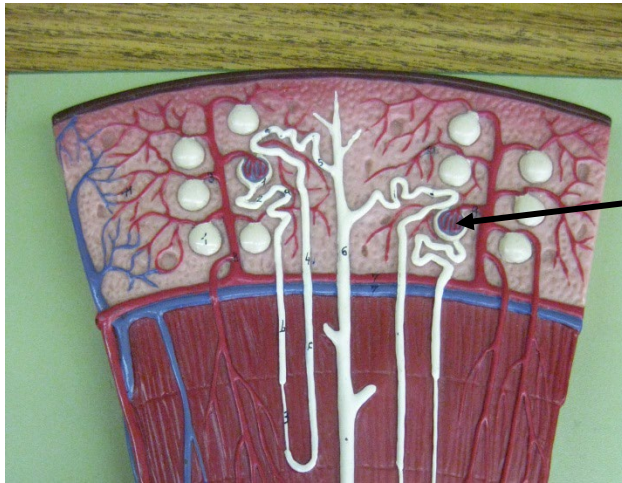
5. **(SLO 3G)** The arrow is pointing to the



- A. Testes
  - B. Prostate
  - C. Urinary bladder
  - D. Epididymus
6. **(SLO 2)** The component of blood responsible for clotting is
- A. Erythrocytes
  - B. Platelets
  - C. Leukocytes
  - D. Hemoglobin
7. **(SLO 1C)** The type of cell responsible for specific immunity
- A. Neutrophil
  - B. Basophil
  - C. Lymphocyte

D. Macrophage

8. (SLO 1D) During inhalation, air travels from \_\_\_\_\_ atmospheric pressure to \_\_\_\_\_ intrapulmonary pressure.
- A. High; low
  - B. Low; high
  - C. Not enough information to determine
9. (SLO 3D) The right lung has \_\_\_\_ lobes
- A. 1
  - B. 2
  - C. 3
  - D. 4
10. (SLO 3F) The arrow is pointing to the



- A. Renal cortex
- B. The glomerulus
- C. The nephron loop
- D. The collecting duct



11. **(SLO 3E)** Which part of the digestive tract has rugae?

- A. mouth
- B. esophagus
- C. stomach
- D. small intestines
- E. large intestines

12. **(SLO 1G)** Gamete are produced in the

- A. Uterus and testes
- B. Ovaries and scrotum
- C. Scrotum and fallopian tubes
- D. Testes and ovaries



## Assessment Record

Program: Biology (BIO 220)

Assessment period: Fall 2020- Summer 2021

### Program or Department Mission:

The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters.

## Course Student Outcomes & Assessment Plan

### Biology 220 Course Level Assessment Rubric:

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#### Course Level Student Learning Outcomes Assessed

1. Students will be able to identify the differences between prokaryotic and eukaryotic cells as well as the structure and function of microorganisms in various environments.
2. Students will recognize the metabolic and genetic pathways in microorganisms as well as the clinical and industrial applications of these properties.
3. Students will be able to identify the relationship between microorganism infection and disease, interactions with the host immune system, and various methods for controlling the growth and dissemination of microorganisms.
4. Students will be able to recognize proper laboratory technique and protocols including aseptic technique, media selection, slide preparation, and microscopy.

Intended Outcomes	Means of Assessment	Criteria for Success	Summary & Analysis of Assessment Evidence			Use of Results																											
<p>1. Identify the differences between prokaryotic and eukaryotic cells as well as the structure and function of microorganisms in various environments.</p>	<p>Student learning outcomes were assessed by using a 13 question standardized multiple choice examination at the end of the semester. A total of two questions (Q1 and Q2) were used to assess SLO-1.</p> <p><a href="#">See BIO 220 SLO assessment in Appendix</a></p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions related to SLO 1.</p>	<table border="1"> <tbody> <tr> <td data-bbox="1043 238 1171 345">Fall 2020</td> <td data-bbox="1171 238 1310 345">Jefferson</td> <td data-bbox="1310 238 1591 345"># students = 64 # correct = 71 % correct = 55%</td> </tr> <tr> <td data-bbox="1043 345 1171 454"></td> <td data-bbox="1171 345 1310 454">Shelby</td> <td data-bbox="1310 345 1591 454"># students = 90 # correct = 124 % correct = 69%</td> </tr> <tr> <td data-bbox="1043 454 1171 563"></td> <td data-bbox="1171 454 1310 563">Clanton</td> <td data-bbox="1310 454 1591 563"># students = 40 # correct = 72 % correct = 90%</td> </tr> <tr> <td data-bbox="1043 563 1171 672">Spring 2021</td> <td data-bbox="1171 563 1310 672">Jefferson</td> <td data-bbox="1310 563 1591 672"># students = 49 # correct = 80 % correct = 82%</td> </tr> <tr> <td data-bbox="1043 672 1171 781"></td> <td data-bbox="1171 672 1310 781">Shelby</td> <td data-bbox="1310 672 1591 781"># students = 108 # correct = 155 % correct = 72%</td> </tr> <tr> <td data-bbox="1043 781 1171 889"></td> <td data-bbox="1171 781 1310 889">Clanton</td> <td data-bbox="1310 781 1591 889"># students = 40 # correct = 72 % correct = 90%</td> </tr> <tr> <td data-bbox="1043 889 1171 998">Summer 2021</td> <td data-bbox="1171 889 1310 998">Jefferson</td> <td data-bbox="1310 889 1591 998"># students = 21 # correct = 27 % correct = 64%</td> </tr> <tr> <td data-bbox="1043 998 1171 1107"></td> <td data-bbox="1171 998 1310 1107">Shelby</td> <td data-bbox="1310 998 1591 1107"># students = 116 # correct = 150 % correct = 65%</td> </tr> <tr> <td data-bbox="1043 1107 1171 1216"></td> <td data-bbox="1171 1107 1310 1216">Clanton</td> <td data-bbox="1310 1107 1591 1216"># students = 34 # correct = 66 % correct = 97%</td> </tr> </tbody> </table> <p><b>Total Students Tested = 562</b> <b>Total Annual Success Rate = 73%</b></p>			Fall 2020	Jefferson	# students = 64 # correct = 71 % correct = 55%		Shelby	# students = 90 # correct = 124 % correct = 69%		Clanton	# students = 40 # correct = 72 % correct = 90%	Spring 2021	Jefferson	# students = 49 # correct = 80 % correct = 82%		Shelby	# students = 108 # correct = 155 % correct = 72%		Clanton	# students = 40 # correct = 72 % correct = 90%	Summer 2021	Jefferson	# students = 21 # correct = 27 % correct = 64%		Shelby	# students = 116 # correct = 150 % correct = 65%		Clanton	# students = 34 # correct = 66 % correct = 97%	<p><b>Observations/Changes</b> Students met the benchmark for successful mastery of SLO 1 at 73% which was a marked improvement from 19/20 where the success rate was 58%. We made an effort to emphasize the differences between prokaryotic and eukaryotic cells throughout the semester. (See additional materials) We also worked to incorporate relevant vocabulary throughout the semester. Faculty were encouraged to make available lectures and study resources on the LMS throughout the semester. As evidenced by the significant increase in students mastering SLO 1, these approaches were a success.</p> <p><a href="#">We will continue to stress cell structure and the differences between prokaryotes and eukaryotes</a> throughout the semester. <a href="#">We will also continue to make available online resources for students to utilize throughout the semester.</a></p>
Fall 2020	Jefferson	# students = 64 # correct = 71 % correct = 55%																															
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<p>2. Recognize the metabolic and genetic pathways in microorganisms as well as the clinical and industrial applications of these properties.</p>	<p>Student learning outcomes were assessed by using a 13 question standardized multiple choice examination at the end of the semester. A total of three questions (Q3 - Q5) were used to assess SLO2.  <a href="#">See BIO 220 SLO assessment in Appendix</a></p>	<p>70% or &gt; successful  69% or &lt; unsuccessful  The percent is based upon the average of correctly answered questions related to SLO 1.</p>	<table border="1"> <tr> <td>Fall 2020</td> <td>Jefferson</td> <td># students = 64 # correct = 138 % correct = 72%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 90 # correct = 206 % correct = 76%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 40 # correct = 109 % correct = 91%</td> </tr> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students = 49 # correct = 125 % correct = 85%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 108 # correct = 247 % correct = 76%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 40 # correct = 109 % correct = 91%</td> </tr> <tr> <td>Summer 2021</td> <td>Jefferson</td> <td># students = 21 # correct = 57 % correct = 90%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 115 # correct = 253 % correct = 73%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 34 # correct = 100 % correct = 98%</td> </tr> <tr> <td colspan="3" style="text-align: center;"> <b>Total Students Tested = 562</b>  <b>Total Annual Success Rate = 80%</b> </td> </tr> </table>			Fall 2020	Jefferson	# students = 64 # correct = 138 % correct = 72%		Shelby	# students = 90 # correct = 206 % correct = 76%		Clanton	# students = 40 # correct = 109 % correct = 91%	Spring 2021	Jefferson	# students = 49 # correct = 125 % correct = 85%		Shelby	# students = 108 # correct = 247 % correct = 76%		Clanton	# students = 40 # correct = 109 % correct = 91%	Summer 2021	Jefferson	# students = 21 # correct = 57 % correct = 90%		Shelby	# students = 115 # correct = 253 % correct = 73%		Clanton	# students = 34 # correct = 100 % correct = 98%	<b>Total Students Tested = 562</b> <b>Total Annual Success Rate = 80%</b>			<p><b>Observations/Changes</b>  Students met the benchmark for successful mastery of SLO at 80%. This is an increase from last year (71%). Faculty worked to correlate how the metabolic and genetic pathways correlated to materials covered in lab, even though the students were completing labs at home (either virtual labs or at home lab kits). (See additional materials).   The virtual labs (like Connect) appear to have helped the students make the relevant connections between metabolic processes and the lab activities. It is possible that even when we return to in person labs, <a href="#">these types of virtual labs might serve as a pre-lab activities and assignments.</a> (See <a href="#">Additional materials</a>)</p>
Fall 2020	Jefferson	# students = 64 # correct = 138 % correct = 72%																																		
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<p>3. Identify the relationship between microorganism infection and disease, interactions with the host immune system, and various methods for controlling the</p>	<p>Student learning outcomes were assessed by using a 13 question standardized multiple choice examination at the end of the semester. A total of two questions (Q6 and</p>	<p>70% or &gt; successful  69% or &lt; unsuccessful  The percent is based upon the average of correctly answered questions related to SLO 1.</p>	<table border="1"> <tr> <td>Fall 2020</td> <td>Jefferson</td> <td># students = 64 # correct = 117 % correct = 91%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 90 # correct = 171 % correct = 95%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 40 # correct = 73 % correct = 91%</td> </tr> </table>			Fall 2020	Jefferson	# students = 64 # correct = 117 % correct = 91%		Shelby	# students = 90 # correct = 171 % correct = 95%		Clanton	# students = 40 # correct = 73 % correct = 91%	<p><b>Observations/Changes</b>  Students met the benchmark for success with a 92% success rate. This is a slight increase from last years success rate which was 89%.</p>																					
Fall 2020	Jefferson	# students = 64 # correct = 117 % correct = 91%																																		
	Shelby	# students = 90 # correct = 171 % correct = 95%																																		
	Clanton	# students = 40 # correct = 73 % correct = 91%																																		

<p>growth and dissemination of microorganisms.</p>	<p>Q7) were used to assess SLO2.</p> <p><a href="#">See BIO 220 SLO assessment in Appendix</a></p>		<table border="1"> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students =49 # correct =93 % correct = 95%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 108 # correct = 200 % correct = 93%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 40 # correct = 73 % correct = 91%</td> </tr> <tr> <td>Summer 2021</td> <td>Jefferson</td> <td># students = 21 # correct = 41 % correct = 98%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 115 # correct = 200 % correct = 86%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 34 # correct = 62 % correct = 91%</td> </tr> </table> <p><b>Total Students Tested = 562</b> <b>Total Annual Success Rate = 92%</b></p>			Spring 2021	Jefferson	# students =49 # correct =93 % correct = 95%		Shelby	# students = 108 # correct = 200 % correct = 93%		Clanton	# students = 40 # correct = 73 % correct = 91%	Summer 2021	Jefferson	# students = 21 # correct = 41 % correct = 98%		Shelby	# students = 115 # correct = 200 % correct = 86%		Clanton	# students = 34 # correct = 62 % correct = 91%	<p>We emphasized content related to infectious diseases during both lecture and lab. We also worked to provide students with access to lecture materials and study aids via the LMS throughout the semester. (See additional materials)</p> <p><a href="#">We will continue to focus on common pathogens and make use of current topics</a> to reinforce the relevance of material related to pathogenic organisms and host responses.</p>
Spring 2021	Jefferson	# students =49 # correct =93 % correct = 95%																						
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<p>4. Students will be able to recognize proper laboratory technique and protocols including aseptic technique, media selection, slide preparation, and microscopy.</p>	<p>Student learning outcomes were assessed by using a 13 question standardized multiple choice examination at the end of the semester. A total of 6 questions (Q8 – Q13) were used to assess SLO4</p> <p><a href="#">See BIO 220 SLO assessment in Appendix</a></p>	<p>70% or &gt; successful 69% or &lt; unsuccessful The percent is based upon the average of correctly answered questions related to SLO 1</p>	<table border="1"> <tr> <td>Fall 2020</td> <td>Jefferson</td> <td># students = 64 # correct =269 % correct = 70%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 90 # correct =419 % correct = 78%</td> </tr> <tr> <td></td> <td>Clanton</td> <td># students = 40 # correct =227 % correct = 95%</td> </tr> <tr> <td></td> <td>Pell City</td> <td># students = 0 # correct = % correct =</td> </tr> <tr> <td>Spring 2021</td> <td>Jefferson</td> <td># students = 49 # correct =206 % correct = 70%</td> </tr> <tr> <td></td> <td>Shelby</td> <td># students = 108</td> </tr> </table>			Fall 2020	Jefferson	# students = 64 # correct =269 % correct = 70%		Shelby	# students = 90 # correct =419 % correct = 78%		Clanton	# students = 40 # correct =227 % correct = 95%		Pell City	# students = 0 # correct = % correct =	Spring 2021	Jefferson	# students = 49 # correct =206 % correct = 70%		Shelby	# students = 108	<p><b>Observations/Changes</b> Students met the benchmark for success for SLO 4 with a success rate of 79%. This is slightly lower than last year (81%) but it should be noted that due to COVID, we had no in person microbiology lab courses. We emphasized the proper laboratory techniques and protocols through out the semester, making use of videos and virtual labs. We managed to keep our success rate</p>
Fall 2020	Jefferson	# students = 64 # correct =269 % correct = 70%																						
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Spring 2021	Jefferson	# students = 49 # correct =206 % correct = 70%																						
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					# correct = 519 % correct = 80%	<p>stable, despite no in person lab sections. Across the campuses, instructors have made use of virtual labs and at home lab kits to ensure a laboratory component. (See Additional Materials). The data suggests we can meet our learning objectives with these approaches.</p> <p><a href="#">We will continue to make use of online lab and data tools</a> so that students can engage in pre-lab and post-lab activities at home to reinforce what they are learning in the lab. The availability of at home and online materials can also help support students that have trouble making it to every lab class.</p>
			Clanton		# students = 40 # correct = 227 % correct = 95%	
			Pell City		# students = 0 # correct = % correct =	
		Summer 2021	Jefferson		# students = 21 # correct = 105 % correct = 83%	
			Shelby		# students = 116 # correct = 503 % correct = 72%	
			Clanton		# students = 34 # correct = 197 % correct = 97%	
			Pell City		# students = 0 # correct = % correct =	
			<b>Total Students Tested = 562</b>			
			<b>Total Annual Success Rate = 79%</b>			
<b>Plan submission date:</b>			<b>Submitted by:</b>			

**Appendix: BIO 220 SLO Assessment**

**SLO 1**

1. One of the main differences between Prokaryotic and Eukaryotic cells is \_\_\_\_\_
  - a. Cell Membrane
  - b. Membrane bound organelles
  - c. Flagella
  - d. Cell Wall
  - e. All of the above
  
2. The organelle responsible for cell motility?
  - a. Cilia
  - b. Fimbriae
  - c. Flagellum
  - d. Pili
  - e. All of the above

**SLO 2**

3. Which pathway is NOT involved in aerobic respiration?
  - a. Krebs Cycle
  - b. Glycolysis
  - c. TCA cycle
  - d. Electron Transport
  
4. The process of going from DNA to RNA is called \_\_\_\_\_?
  - a. Transcription
  - b. Translation
  - c. Replication
  - d. All of the above
  - e. None of the above
  
5. \_\_\_\_\_ is used for storing hereditary information, \_\_\_\_\_ is used for directly making protein.
  - a. RNA, RNA
  - b. RNA, DNA
  - c. DNA, DNA
  - d. DNA, RNA
  - e. DNA, protein

### SLO 3

6. What are microbes that cause diseases in all humans called?
  - a. Normal Flora
  - b. Transient Flora
  - c. Pathogens
  - d. Opportunistic Pathogens
  - e. None of the above
  
7. The destruction of all microbial growth, including endospores, is called \_\_\_\_\_.
  - a. Sanitation
  - b. Disinfection
  - c. Sterilization
  - d. All of the above
  - e. None of the above

### SLO 4

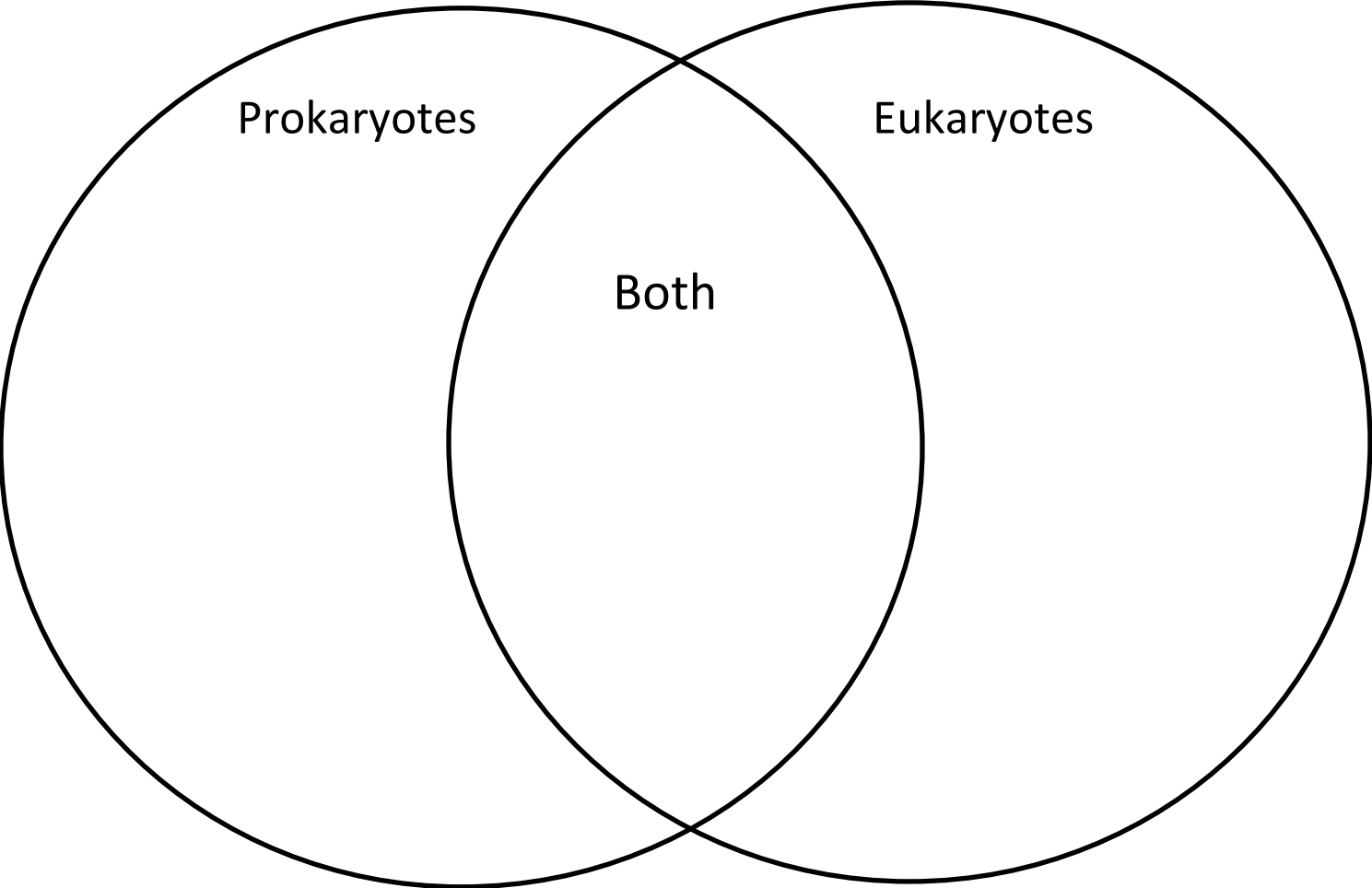
8. When inoculating an agar slant from a broth, what should be used?
  - a. Inoculating Loop
  - b. Inoculating Needle
  - c. Inoculating Spatula
  - d. Inoculating Dropper
  - e. None of the above
  
9. When inoculating a new growth media from a pure bacterial culture, the biggest concern is \_\_\_\_\_?
  - a. Not transferring enough bacteria
  - b. Transferring too much bacteria
  - c. Contamination
  - d. All of the above
  
10. Please select the correct order for the Gram Stain technique.
  - a. Crystal Violet, Alcohol, Iodine, Safranin
  - b. Crystal Violet, Iodine, Alcohol, Safranin
  - c. Safranin, Iodine, Crystal Violet, Alcohol
  - d. Safranin, Iodine, Alcohol, Crystal Violet
  - e. Iodine, Crystal Violet, Safranin, Alcohol



11. After performing a Gram Stain, what color and shape would Gram positive cocci bacteria be?
  - a. Pink circles
  - b. Purple circles
  - c. Pink rods
  - d. Purple rods
  
12. If you wanted to isolate a single colony of bacteria from a liquid broth culture, what technique would you use?
  - a. Streak plate
  - b. Filtration
  - c. Slant
  - d. Broth
  
13. What type of growth media will allow all microbes to grow, but will also allow for the ability to see differences between microbes.
  - a. General Growth Media (Nutrient Agar)
  - b. Selective Media
  - c. Differential Media
  - d. Selective and Differential Media

**Additional Materials SLO 1**

Example of an assignment used to assess the differences and similarities between prokaryotes and eukaryotes



## SLO 2

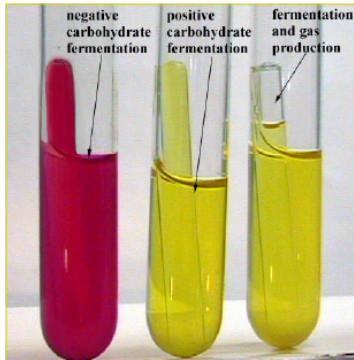
In an at home lab activity, students look at the fermentation of lactose which is a metabolic pathway covered in lecture

### Lactose Fermentation

Different bacteria are capable of fermenting different sugars. Some bacteria can only utilize glucose whereas others can utilize glucose, and many others including citrate, mannitol, sucrose and lactose. We are going to test if our nasal bacteria can ferment lactose. You will notice that the tube is red. Just like the MSA plate, it contains an acid/base indicator that will turn yellow in the presence of acid. We can deduce if the lactose in the broth is used for fermentation that acid will be made and the tube will turn yellow. You will also notice there is a smaller tube within the tube. This is called a durham tube and is used to collect gas. A bubble in the durham tube means that your bacteria produced gas.

### Procedure

1. Take a sterile loop and touch it to the colony you have chosen on your plate. Do not take the entire colony, you will need to save some for the next two experiments.
2. Inoculate your lactose broth - place the loop in the broth and swirl it around.
3. Close the lid of the tube and leave on the counter for five day.
4. Observe the tube - did it turn yellow? If it is yellow, acid was produced and you can conclude that your bacteria can metabolize lactose. Is there a bubble in the durham tube? If there is a bubble then you can conclude that gas was produced by your bacteria. If the tube remained red, then lactose was not metabolized by your bacteria
5. Take a picture of your result for you lab report and note your conclusions.



### SLO 3

Students are provided a list of pathogenic organisms matched with the diseases that they cause. Throughout the semester, these organisms will be discussed both in lecture and in lab, and in some sections, students are quizzed weekly on a subset.

<b>BIO 220 Fall 2019 MW Bug Quizzes</b>			
Each quiz is worth 10 points. Spelling of the bug counts. You must know both the bug's name and the disease.			
<b>Bug Quiz #1--Wednesday 8/28</b>		<b>Bug Quiz #6--Wednesday 10/16</b>	
<i>Staphylococcus aureus</i>	Endocarditis	<i>Streptococcus pyogenes</i>	Laryngitis
<i>E. coli</i>	Food poisoning	<i>Streptococcus pneumoniae</i>	Sinusitis
<i>Pseudomonas</i>	Burn infections	<i>Pseudomonas</i>	Pneumonia
<i>Streptococcus pyogenes</i>	Strep throat	Influenza virus	Influenza
<i>Haemophilus influenzae</i>	Pneumonia	Respiratory syncytial virus	Viral pneumonia
<b>Bug Quiz #2--Wednesday 9/11</b>		<b>Bug Quiz #7--Wednesday 10/23</b>	
<i>Streptococcus pneumoniae</i>	Pneumonia	<i>Neisseria gonorrhoea</i>	Gonorrhea
<i>Bordetella pertussis</i>	Pertussis (whooping cough)	<i>Chlamydia trachomatis</i>	Chlamydia
Varicella-zoster herpes virus	Chicken pox	<i>Treponema pallidum</i>	Syphilis
<i>Staphylococcus aureus</i>	Toxic shock syndrome	Herpes simplex virus	Genital herpes
<i>Clostridium tetani</i>	Tetanus	Human papillomavirus	HPV infection, cervical cancer, oral cancer, throat cancer
<b>Bug Quiz #3--Wednesday 9/18</b>		<b>Bug Quiz #8--Wednesday 10/30</b>	
<i>Clostridium botulinum</i>	Botulism	<i>Clostridium difficile</i>	Diarrhea
<i>Candida albicans</i>	Yeast infection, thrush	<i>Brucella abortus</i>	Brucellosis
<i>Neisseria meningitidis</i>	Meningococcal meningitis	<i>Francisella tularensis</i>	Tularemia (rabbit fever)
<i>Streptococcus pneumoniae</i>	Pneumococcal meningitis	<i>Campylobacter jejuni</i>	Food poisoning
<i>Mycobacterium tuberculosis</i>	Tuberculosis	<i>Bartonella henselae</i>	Cat scratch fever
<b>Bug Quiz #4--Wednesday 9/25</b>		<b>Bug Quiz #9--Wednesday 11/13</b>	
<i>Corynebacterium diphtheriae</i>	Diphtheria	<i>Streptococcus pyogenes</i>	Scarlet fever
Arbovirus	West Nile viral encephalitis	<i>Helicobacter pylori</i>	Stomach ulcers
<i>Haemophilus influenzae</i>	Meningitis	Epstein-Barr virus	Infectious mononucleosis
<i>Borrelia burgdorferi</i>	Lyme disease	<i>Listeria monocytogenes</i>	Food poisoning
<i>Vibrio cholerae</i>	Cholera	<i>Rickettsia rickettsii</i>	Rocky mountain spotted fever
<b>Bug Quiz #5--Wednesday 10/9</b>		<b>Lab Quiz 1 - Microscopy 9/4</b>	
<i>Streptococcus pyogenes</i>	Rheumatic fever	<b>Lab Quiz 2 - Aseptic Technique 9/16</b>	
<i>Clostridium perfringens</i>	Gangrene	<b>Lab Quiz 3 - Gram Stain 9/23</b>	
<i>Haemophilus influenzae</i>	Sinusitis	<b>Lab Quiz 4 - Carbohydrate and protein Catabolism 10/7</b>	
<i>Staphylococcus aureus</i>	Middle ear infection		
<i>Salmonella</i>	Salmonellosis		

## SLO 4

Example of an at home lab curriculum utilized by some instructors. Students were provided with kits so that they could perform simple experiments at home. In each folder is a typed guide for completing the experiment and a video of the instructor demonstrating the experimental process.

The screenshot displays a Blackboard LMS interface for a 'General Microbiology' course. The browser address bar shows the URL: [jeffersonstate.blackboard.com/ultra/courses/\\_19590\\_1/c/outline](https://jeffersonstate.blackboard.com/ultra/courses/_19590_1/c/outline). The page title is 'At Home Labs'. A left-hand navigation menu includes sections for 'General Microbiology', 'START HERE!!!', 'Course Materials', 'Course Assessment', and 'Course Management'. The main content area lists several folders and documents:

- Effectiveness of Hand Washing
- Effectiveness of Disinfectants
- Identifying unknown nasal bacteria
- Throat bacteria and hemolysis
- Lab Report guide
- Sample paper from Journal of Pathology

The Windows taskbar at the bottom shows the search bar, system tray with weather (71°F, Light rain), and date/time (1:34 PM, 12/6/2022).

Example of virtual laboratory activities utilized by some instructors

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practice  
Due Date: June 6, 2021 11:59:00 PM CDT

@ **SmartBook 2.0 Orientation Video**  
practice  
Due Date: June 6, 2021 11:59:00 PM CDT

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**Im** **Virtual Labs Tutorial**  
Virtual Labs

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**11i11** **success in your online class**  
Adaptive Learning Assignment  
Due Date: August 3, 2021 11:59:00 PM CDT

**m** **Lab Safety: Handwashing**  
Virtual Labs  
Due Date: June 6, 2021 11:59:00 PM CDT

**m** **Lab Safety: Personal Safety**  
Virtual Labs

CJ

\*) 11 <12AM

Example of instructor resources posted in LMS throughout the semester.

The screenshot displays a Blackboard LMS interface for a course titled "General Microbiology". The page is titled "Lecture" and features a sidebar navigation menu on the left. The main content area lists several instructor resources:

- Recorded Lectures**: Recordings of each lecture can be found here.
- Lecture Notes**
- Study Guides**
- Exam 1 Review**
- Exam 2 Review**
- Exam 3 Review**
- Final Exam Review**
- Pathogenic organisms and diseases to know!!**

The sidebar menu includes sections for "General Microbiology", "START HERE!!!", "Course Materials", "Course Assessment", and "Course Management". The Windows taskbar at the bottom shows the time as 1:38 PM on 12/6/2022.