

UNIVERSITY OF ARKANSAS  
PULASKI TECH

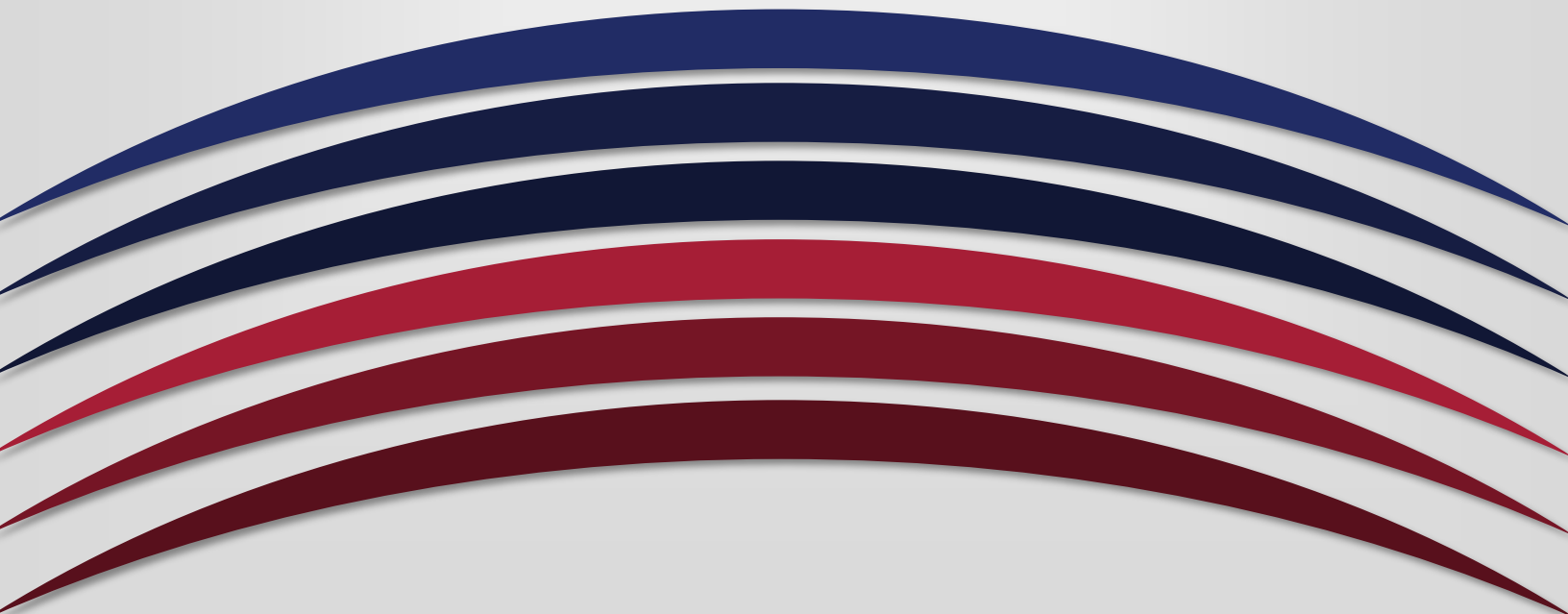
Course-Level Assessment Report

Course: Human Anatomy &

Physiology I

BIOL 1304

Academic Year: 2020-2021



1. Name of course: Human Anatomy & Physiology I
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3. Date of submission: August 9, 2021
4. Academic year: 2020-2021

## Course-Level Learning Outcomes

### 1. What are the Course-Level Outcomes (CLOs)?

#### Course Learning Outcomes: BIOL 1304 Human Anatomy & Physiology I (Class)

1. **Body Organization** The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the body organization (includes terms, basic biochemistry, cellular structure & function, metabolism, histology, & integumentary system)
2. **Musculoskeletal System** The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the musculoskeletal system (includes muscular system, skeletal system, & joints)
3. **Nervous System** The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the nervous system (includes nervous system & general senses)

### 2. Which CLOs were addressed for the academic year?

CLO # 1 (Body organization)

CLO # 2 (Musculoskeletal system)

CLO # 3 (Nervous system)

### 3. Which CLOs are being addressed in your assessment plan in the upcoming academic year?

CLO # 1 (Body organization)

CLO # 2 (Musculoskeletal system)

CLO # 3 (Nervous system)

#### 4. Explain the assessment cycle.

Standardized assessments for CLOs 1, 2, & 3 are conducted each semester.

#### 5. What are the assessment methods? Are they direct or indirect?

CLO 1(body organization): Direct

Essay Question. Topic: Protein Synthesis. Bloom's Taxonomy Level 3. Using a common written assessment in the form of an essay the student will explain protein synthesis as it relates to body organization and cellular function. A copy of the rubric is provided for the student.

CLO 1 (body organization) and CLO 2 (musculoskeletal system): Direct

Essay Question. Topic: Homeostasis of Calcium ion. Bloom's Taxonomy Level 3. Using a common written assessment in the form of an essay the student will explain the homeostasis of calcium ion as it relates to body organization (homeostasis), and the function of bone (musculoskeletal system). A copy of the rubric is provided for the student.

CLO 2 (musculoskeletal system): Direct

Essay Question. Topic: Skeletal Muscle Contraction Physiology. Bloom's Taxonomy Level 3. Using a common written assessment in the form of an essay the student will explain skeletal muscle contraction physiology as it relates to muscular system. A copy of the rubric is provided for the student.

CLO 3: Direct

Essay Question. Topic: Autonomic Nervous System (sympathetic/parasympathetic). Bloom's Taxonomy Level 1-2. Using a common written assessment in the form of an essay the student will explain and describe (compare) the divisions of the Autonomic Nervous System as it relates to the nervous system. A copy of the rubric is provided for the student.

Note: There are four-unit exams administered during the course. Although there are only three CLOs, four essays are given so that each exam has a corresponding essay.

#### 6. What are the assessment goal(s), including benchmarks?

Success for each CLO will be measured with 70% of sections combined passing at 70+%.

#### 7. What were the findings for the academic year?

CLO # 1 (Body organization) Assessment Method: Essay – Protein synthesis	Fall 2020	Spring 2021	Annual Totals
<b>All Types of Courses</b> (Traditional, Online, Webinar, & Hybrid)			
Total # of students assessed (who attempted the assessment)	170	152	322
Total # of student who successfully completed the assessment with a score of 70+%	81	66	147
Total percentage of students who passed with a score of 70+%	48%	43%	46%
<b>Traditional Courses</b>			
Total # of traditional students assessed (who attempted the assessment)	125	66	191
Total # of traditional students who successfully completed the assessment with a score of 70+%	64	33	97
Total percentage of traditional students who passed with a score of 70+%	51%	50%	51%
<b>Online Courses</b>			
Total # of online students assessed (who attempted the assessment)	45	86	131
Total # of online students who successfully completed the assessment with a score of 70+%	17	33	50
Total percentage of online students who passed with a score of 70+%	38%	38%	38%
<b>Webinar Courses</b>			
Note: Webinar course was not offered during 2020-21 academic year.			
None	0	0	0
<b>Hybrid Courses</b>			
Note: Hybrid course was not offered during 2020-21 academic year.			
None	0	0	0

CLO # 1 (Body organization/homeostasis) & CLO # 2 (Musculoskeletal system) Assessment Method: Essay – Calcium ion Homeostasis	Fall 2020	Spring 2021	Annual Totals
<b>All Types of Courses</b> (Traditional, Online, Webinar, & Hybrid)			
Total # of students assessed (who attempted the assessment)	131	131	262

Total # of student who successfully completed the assessment with a score of 70+%	84	79	163
Total percentage of students who passed with a score of 70+%	64%	60%	62%
<b>Traditional Courses</b>			
Total # of traditional students assessed (who attempted the assessment)	81	53	134
Total # of traditional students who successfully completed the assessment with a score of 70+%	49	43	92
Total percentage of traditional students who passed with a score of 70+%	60%	81%	69%
<b>Online Courses</b>			
Total # of online students assessed (who attempted the assessment)	50	78	128
Total # of online students who successfully completed the assessment with a score of 70+%	35	36	71
Total percentage of online students who passed with a score of 70+%	70%	46%	55%
<b>Webinar Courses</b>			
Note: Webinar course was not offered during 2020-21 academic year			
None	0	0	0
<b>Hybrid Courses</b>			
Note: Webinar course was not offered during 2020-21 academic year			
None	0	0	0

CLO # 2 (Musculoskeletal system)	Fall	Spring	Annual
Assessment Method: Essay – Muscle contraction	2020	2021	Totals
<b>All Types of Courses (Traditional, Online, Webinar, &amp; Hybrid)</b>			
Total # of students assessed (who attempted the assessment)	119	114	233
Total # of student who successfully completed the assessment with a score of 70+%	67	53	120
Total percentage of students who passed with a score of 70+%	56%	47%	52%
<b>Traditional Courses</b>			
Total # of traditional students assessed (who attempted the assessment)	75	49	124
Total # of traditional students who successfully completed the assessment with a score of 70+%	46	26	72
Total percentage of traditional students who passed with a score of 70+%	61%	53%	58%

<b>Online Courses</b>			
Total # of online students assessed (who attempted the assessment)	44	65	109
Total # of online students who successfully completed the assessment with a score of 70+%	21	27	48
Total percentage of online students who passed with a score of 70+%	48%	42%	44%
<b>Webinar Courses</b>			
Note: Webinar course was not offered during 2020-21 academic year.			
None	0	0	0
<b>Hybrid Courses</b>			
Note: Hybrid course was not offered during 2020-21 academic year.			
None	0	0	0

CLO # 3 (Nervous System)		Fall	Spring	Annual
Assessment Method: Essay – Autonomic nervous system (sympathetic/parasympathetic)		2020	2021	Totals
All Types of Courses (Traditional, Online, Webinar, & Hybrid)				
Total # of students assessed (who attempted the assessment)	92	104	196	
Total # of student who successfully completed the assessment with a score of 70+%	47	46	93	
Total percentage of students who passed with a score of 70+%	51%	44%	47%	
Traditional Courses				
Total # of traditional students assessed (who attempted the assessment)	68	32	100	
Total # of traditional students who successfully completed the assessment with a score of 70+%	37	11	48	
Total percentage of traditional students who passed with a score of 70+%	54%	34%	48%	
Online Courses				
Total # of online students assessed (who attempted the assessment)	24	72	96	
Total # of online students who successfully completed the assessment with a score of 70+%	10	35	45	
Total percentage of online students who passed with a score of 70+%	42%	49%	47%	
Webinar Courses				

Note: Webinar course was not offered during 2020-21 academic year.			
None	0	0	0
<b>Hybrid Courses</b>			
Note: Hybrid course was not offered during 2020-21 academic year.			
None	0	0	0

Note: Student who registered for a traditional course were included in the traditional course regardless of HyFlex attendance choice selected for the fall 2020 semester. HyFlex attendance choice allowed the student to select the method of attendance for a traditional course. Hyflex attendance allowed the student to select how they wished to attend a course. Either in-person on assigned days (to provide social distancing) or synchronously and/or asynchronously via remote/virtual.

## 8. What is your analysis of the findings?

### CLO 1 (Body Organization)

Assessment Method: Essay – Protein Synthesis.

**Analysis of Results** – The assessment goal of an overall pass rate of 70% for all sections combined passing at 70+% was not achieved. Combined passing percentage was only 46%. The fall and spring semesters separately were approximately the same. Neither the traditional (at 51%) nor the online (at 38%) courses performed well in this assessment. Essay in all sections was administered online through Blackboard.

The essay was administered with a time limit by some faculty and without a time limit by others. Some faculty reported that plagiarism was checked either by internet search or SafeAssign within Blackboard. (SafeAssign is an automated generated report showing percentage of possible plagiarism.) These variants in administration methods and/or grading may have contributed to the failed pass rate. Across the individual sections no improved percentages were noted regardless of method deployed.

Protein synthesis is introduced and covered in the first few chapters of General Biology. Now that the students are no longer required to take General Biology as a pre-requisite, the students seem to be arriving to the Anatomy & Physiology I course with no basic knowledge of this physiological processes from which to build additional details. This lack of basic scientific knowledge could contribute to the overall pass rate being below the projected goal.

### CLO 1 (Body Organization) and CLO 2 (Musculoskeletal system)

Assessment Method: Essay – Calcium Ion Homeostasis

**Analysis of Results** – The assessment goal of an overall pass rate of 70% for all sections combined passing at 70+% was not achieved. Combined passing percentage was only



62%. The fall and spring semesters separately were approximately the same. Neither the traditional (at 69%) nor the online (at 55%) courses performed well in this assessment.

The essay was administered with a time limit by some faculty and without a time limit by others. Some faculty reported that plagiarism was checked either by internet search or SafeAssign within Blackboard. (SafeAssign is an automated generated report showing percentage of possible plagiarism.) These variants in administration methods and/or grading may have contributed to the failed pass rate. Across the individual sections no improved percentages were noted regardless of method deployed.

Homeostasis concept is covered in basic science courses and is covered in the first few chapters of General Biology. As with protein synthesis, now that the students are no longer required to take General Biology as a pre-requisite, the students seem to be arriving to the Anatomy & Physiology I course with no basic knowledge of this physiological processes from which to build. This lack of basic scientific knowledge could contribute to the overall pass rate being below the projected goal.

#### **CLO 2 (Musculoskeletal system)**

Assessment Method: Essay – Skeletal Muscle contraction.

**Analysis of Results** – The assessment goal of an overall pass rate of 70% for all sections combined passing at 70+% was not achieved. Combined passing percentage was only 52%. The fall and spring semesters separately were approximately the same. Neither the traditional (at 58%) nor the online (at 44%) courses performed well in this assessment. Skeletal muscle contraction is a challenging topic for most students. With students arriving to this course with a lack of basic scientific physiological principles could contribute to this topic being overwhelming and resulting in a poor performance on this assessment.

The essay was administered with a time limit by some faculty and without a time limit by others. Some faculty reported that plagiarism was checked either by internet search or SafeAssign within Blackboard. (SafeAssign is an automated generated report showing percentage of possible plagiarism.) These variants in administration methods and/or grading may have contributed to the failed pass rate. Across the individual sections no improved percentages were noted regardless of method deployed.

Skeletal muscle contraction is a challenging physiological concept for most students. For students who arrive without basic knowledge of simple physiological principles comprehending this new topic could be insurmountable. This lack of foundational information could contribute resulting poor performance on this assessment.

#### **CLO 3 (Nervous system)**



Assessment Method: Essay – Autonomic Nervous System  
(sympathetic/parasympathetic)

**Analysis of Results** –The assessment goal of an overall pass rate of 70% for all sections combined passing at 70+% was not achieved. Combined passing percentage was only 47%. The fall and spring semesters separately were approximately the same. Neither the traditional (at 48%) nor the online (at 47%) courses performed well in this assessment.

The essay was administered with a time limit by some faculty and without a time limit by others. Some faculty reported that plagiarism was checked either by internet search or SafeAssign within Blackboard. (SafeAssign is an automated generated report showing percentage of possible plagiarism.) These variants in administration methods and/or grading may have contributed to the failed pass rate. Across the individual sections no improved percentages were noted regardless of method deployed.

Prior to the pandemic it should be noted that this assessment usually met or exceeded the overall pass rate goal. Most students seemed to have recall of a “flight or fight” principle. For learning to occur it is beneficial if a connection can be made between something known and something unknown. Being able to make a connection with prior knowledge could contribute to a higher success rate; however, since the pandemic and the shift in altered academic delivery method the pass rate goal has not been met. It is suspected that the pandemic has impacted on student learning on multiple levels.

**Noted Trend: Lack of Student Participation in Assessment:**

Faculty had previously observed and reported a trend with students not completing and submitting the assessments. This trend began even before the remote pivot. When the essay was administered in-person many students would submit a blank essay with nothing written on it. To discover the possible cause and determine if any corrective actions are needed, data has been collected during this reporting period. (Data collected is not shown in the data charts of this report). Calculations of the data collected showed the following:

- 20% of the students did not attempt the protein synthesis essay in the fall 2020 semester and then 11% did not attempt it in the spring 2021 semester.
- 24% of the students did not attempt the Calcium ion homeostasis essay in the fall 2020 semester, 22% did not attempt it in the spring 2021 semester.
- 29% of the students did not attempt the skeletal muscle contraction essay in the fall 2020 semester, 32% did not attempt it in the spring 2021 semester.
- 33% of the students did not attempt the Autonomic Nervous System essay in the fall 2020 semester, 30% did not attempt it in the spring 2021 semester.

These four essays combined were worth 0.6% of the total grade. The minimal impact on the overall grade could be a factor for students not attempting this assessment. Also,

alteration of standard education delivery methods due to the pandemic could be a contributing factor. Even though makeups were offered in the online testing environment many students still did not complete and submit the assessment essays.

## 9. What is the action plan for the upcoming academic year? Explain.

### CLO 1 (Body organization)

**Action Plan** – Continue using a common essay to describe protein synthesis. A copy of the rubric will be provided for the student. Faculty will attempt individual teaching approaches to improve student comprehension and then share the results.

### CLO 1 (Body Organization) and CLO 2 (Musculoskeletal system)

**Action Plan** – Continue using a common essay to describe calcium ion homeostasis. A copy of the rubric will be provided for the student. Faculty will attempt individual teaching approaches to improve student comprehension and then share the results.

### CLO 2 (Musculoskeletal system)

**Action Plan** – Continue using a common essay to describe a skeletal muscle contraction. A copy of the rubric will be provided for the student. Faculty will attempt individual teaching approaches to improve student comprehension and then share the results.

### CLO 3 (Nervous system)

**Action Plan** – Continue using a common essay to describe the Autonomic Nervous System (sympathetic/parasympathetic). A copy of the rubric will be provided for the student. Faculty will attempt individual teaching approaches to improve student comprehension and then share the results.

### **Noted Trend: Lack of Student Participation in Assessment:**

Data will continue to be collected and analyzed for possible causation and to determine if a plan is necessary for improved student participation. Faculty will attempt individual efforts to encourage participation and then share the results.