Institutional Effectiveness Report
2019-2020

Program: Exercise Science BS

College and Department: College of Education - Department of Exercise Science, Physical Education and Wellness

Contact: Christy Killman, Chairperson

Mission: The mission of the department of Exercise Science is to promote enhanced quality of life (wellness) and strengthen educational pursuits by creating, advancing, communicating and applying knowledge and skills, through innovative preparation of scholars, researchers, educators and professionals to meet the needs of a diverse society.

Mission Brief: Be prepared for service to enhance quality of life for a diverse society.

Vision: Prepare future professionals to be effective and engaged through clinical rich and evidenced based programs.

Program Goals: This program will prepare students to apply knowledge and skills in their chosen area of study to contribute to enhanced quality of life for themselves and a diverse society.

Student Learning Outcomes:

1. Physical fitness – Exercise Science majors will demonstrate health enhancing levels of fitness by satisfying standardized criteria for muscular strength/muscular endurance, flexibility, cardiorespiratory endurance, leg power, grip strength, body mass while participating in the annual physical fitness test.

2. Knowledge and understanding of basic research – Exercise Science majors will demonstrate understanding of the basic methods of research by meeting outlined criteria from a teacher created rubric on the final project in EXPW 4730 – Assessment in Exercise Science class.

3. Knowledge of the field – Exercise Science majors will demonstrate knowledge in the field by answering correctly 80% or more of identified concept questions on the final exam in EXPW 3410 - Motor Development.

A departmentally developed curriculum map can be found in Appendix 1 that shows the connections between courses and student learning outcomes.

Assessment Methods:

1. *Physical fitness test once per academic year.* - The tool used in administration of this test is a nationally normed, proprietary assessment with demonstrated validity and reliability. Each student in the Exercise Science department must take the fitness test once per academic year – either on the fall rotation or spring rotation. Graduate assistants are test administrators, and are professionally trained bi-annually on proper administration protocols for each of the test components. Each undergraduate major sign up for one of the testing sessions through Eagle Online. Each group meets four different days in preparation for and to participate in the fitness test. Students complete the PAR-Q (physical activity readiness questionnaire), fill out their personal scoring sheet and walk-through demonstration of each test during the first meeting. The second meeting is for practice/questions and to collect body mass data from each student.

Meeting 3 includes administration of all tests except the cardiorespiratory endurance assessment. Students run (cardiorespiratory endurance) during the fourth meeting. Each undergraduate student must pass 5 of the 6 different tests according to the health enhancing level of fitness criteria. If any student does not satisfy this requirement, the graduate assistant works with the student, providing information and support related to improvement in that area of fitness. Students have multiple opportunities to improve and satisfy the requirements. (score sheet with national norms attached)

2. *Study design, data collection, analysis and presentation project in EXPW 4730* – Assessment in Exercise Science class. For the capstone project in the assessment class, students must apply understanding of basic research concepts working in a small group to design a study, collect data, analyze data and present their project to their peers. All students are 'subjects' for all studies in this class, causing this project to be directly linked to activity of some sort, which causes students to apply knowledge from other courses in their study design and data collection. Class time is provided for data collections by each of the groups. The instructor created rubric provides guidance for students in preparing and presenting their research. Even though this is a group project, each student is scored individually according to their contribution to and presentation of the research. (rubric attached)

3. *Key identified concepts (knowledge assessment) in EXPW 3410* – Motor Development. Motor development includes foundational concepts that most classes in Exercise Science depend/build heavily on. This course has key concepts, ideas or theories that are monumental to understanding development and learning related motor skills and mature, efficient movement. On the final cumulative exam in EXPW 3410, the key components (directly related to the course objectives) are assessed along with other relevant information from each course. 12 to 15 questions on the final exam are dedicated to these key components. Students are expected to answer identified questions with 80% or higher accuracy to indicate mastery. (Key questions attached)

Results:

Student Learning Outcome 1 - Physical fitness

The results for a sample group of students were examined. When compared to valid and reliable national norms for this age group, the percentage of students in the sample group who “passed” with a health enhancing level of fitness was overall high. The chart and table below outline the level of fitness for the group.

Chart 1

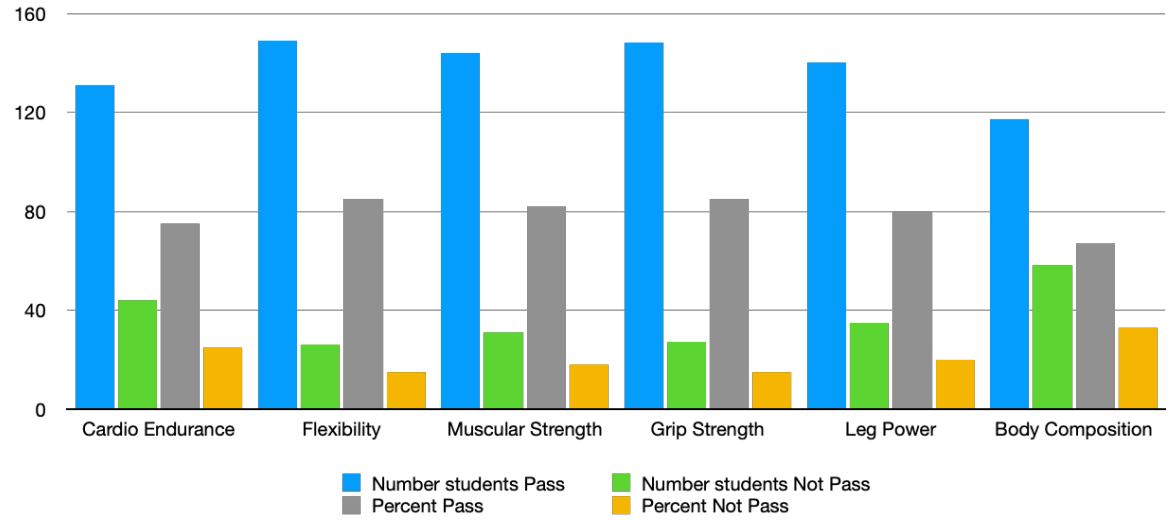

Table 1

Number Students. 175	Number students Pass	Number students Not Pass	Percent Pass	Percent Not Pass
Cardio Endurance	131	44	75	25
Flexibility	149	26	85	15
Muscular Strength	144	31	82	18
Grip Strength	148	27	85	15
Leg Power	140	35	80	20
Body Composition	117	58	67	33

Student Learning Outcome 2 – Knowledge and understanding of basic research

The results for students in the EXPW 4730 class were examined. On the Assessment final project rubric (attached) students are scored in six areas with each being broken down with point values attached. Each student is scored according to their contribution to the study and the presentation. The results are attached as document "Assessment Final Project Results 19-20". (attached) We find that students are strong in finding related research articles, using APA format for writing and references and presenting the materials. The need the most work in data collection and presenting the results.

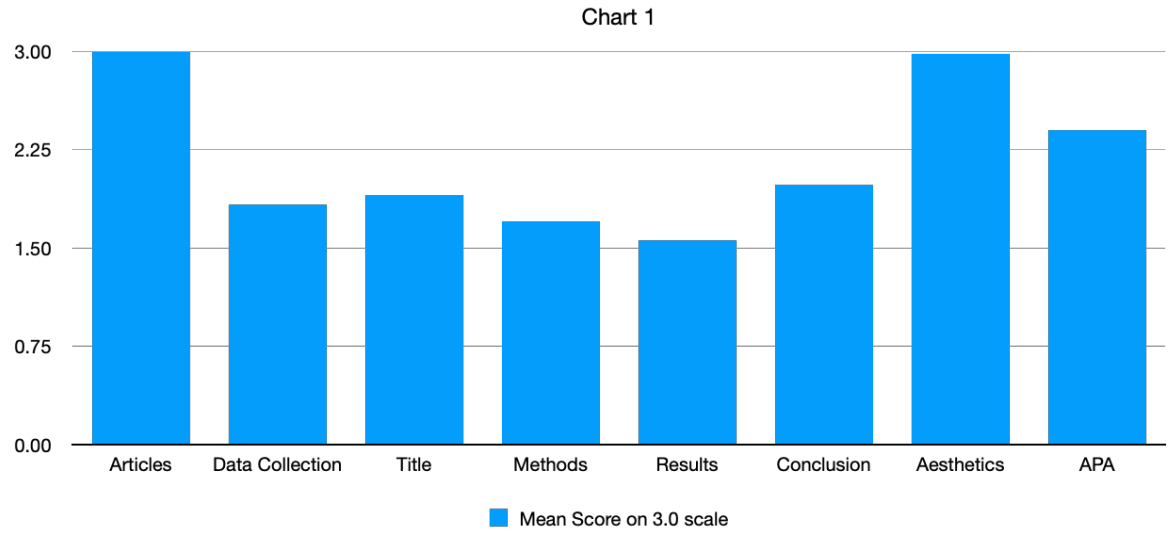

Table 1

Number students = 74	Mean Score on 3.0 scale
Articles	3.00
Data Collection	1.83
Title	1.90
Methods	1.70
Results	1.56
Conclusion	1.98
Aesthetics	2.98
APA	2.40

Student Learning Outcome 3 - Knowledge of the field

The final exam for students in EXPW 3410 was examined and fourteen questions were identified as relevant in measuring understanding of and meeting the expectation of six learning objectives listed on the course syllabus. (See attached). Then, test papers for 64 students were used to retrieve scores for each of the questions and tallied. The results are presented in the attachment labeled "Motor Development Results 19-20". Questions were linked to the corresponding objective, and the percentage of students getting the correct answer is presented per objective. To be labeled as "pass" the student had to get all of the questions for that objective correct on the test paper. In examining the chart below one can see that students scored above the required 75% threshold on questions tied to each of the six objectives. This improvement is likely due to modifications made by the instructors in the Motor Development class which included more time spent learning objectives one and four, and additional quizzes over assigned reading.

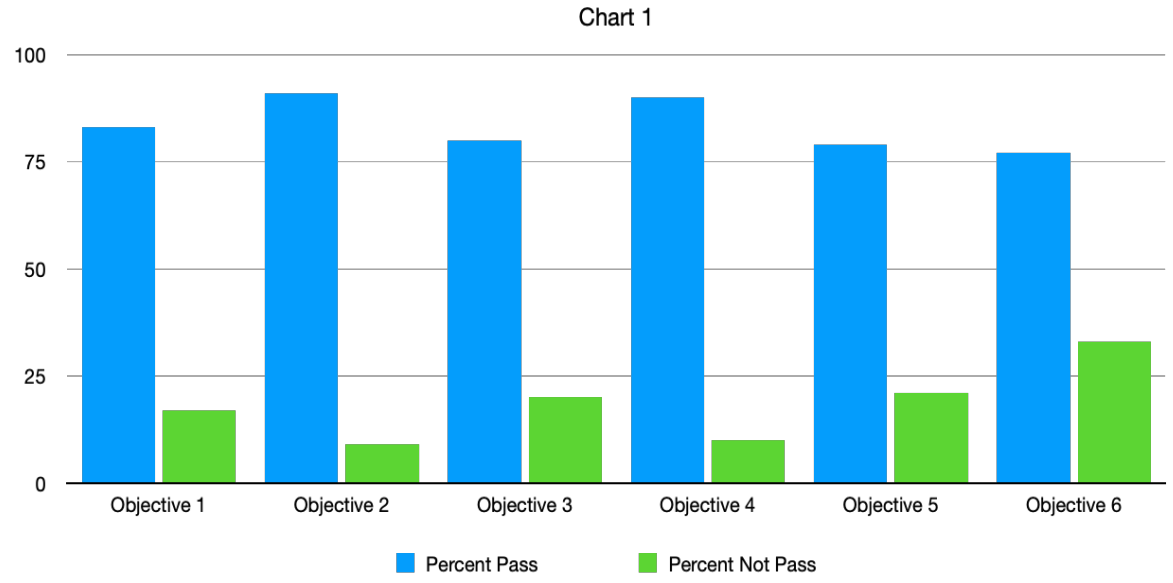

Table 1

Number of Students	Percent Pass	Percent Not Pass
Objective 1	83	17
Objective 2	91	9
Objective 3	80	20
Objective 4	90	10
Objective 5	79	21
Objective 6	77	33

Modifications for Improvement:

Student Learning Outcome 1 - Physical fitness

Fitness test results have been being monitored for Exercise Science majors for several years. There are some limitations of the testing process that cause concern related to how accurate student performance is measured in any given semester. Body composition continues to have the lowest pass rate though, overall student performance related to fitness is good. Modifications that have come from analyzing the data include: (1) Provide professional training bi-annually on proper administration protocols for each of the test components for the graduate assistants who will administer the fitness test, (2) Assign each section of the fitness test to one graduate assistant so that individual can work one-on-one with any student who falls short of the "passing" mark to help them improve their fitness which will improve their score on the assessment the next year. (3) Seek a method to make the data collection less labor intensive (stop using the carbon sheets and manually imputing each student's scores into a spreadsheet).

Student Learning Outcome 2 – Research

Upon reviewing the results from this academic year, data collection and methods areas of research tend to be the weakest areas for students. Modifications for the next year include: (1) Spend more time with students in preparation of the project reviewing and answering questions about the rubric and (2) Recommend student groups consult with instructor about research method before beginning data collection to ensure the group is on the right track with their methods and presenting the results.

Student Learning Outcome 3 - Knowledge of the field

From the analysis of this student data modifications for the future include: (1) identify new ways to help students comprehend and understand concepts that are most difficult in this course so that more students are more successful moving forward, (2) include a capstone type project for students to complete to apply theories, principles and concepts that should be mastered in this course, (3) include EXPW 3170 – Motor Learning in the measurement of 'knowledge of the field' moving forward.

Appendices

1. Curriculum Map
2. Fitness Test Score Sheet
3. Final Project Rubric
4. Motor Development Exam Questions

Appendix 1: Curriculum Map

Exercise Science BS

Course	Title	Goals/Learning Outcomes		
		Physical fitness	Research skills	Knowledge of the field
EXPW 1022			X	
EXPW 3032			X	X
EXPW 3410			X	X
EXPW 3550				
EXPW 4032		X	X	X
EXPW 4420		X	X	X
EXPW 4440		X	X	X
EXPW 4730			X	X
EXPW 4731			X	
EXPW 4900			X	
EXPW 4991			X	
PHED 1002		X		

Appendix 2: Fitness Test Score Sheet

Department of Exercise Science, Physical Education & Wellness
Fitness Assessment Record

Name & T# _____ Concentration _____

Test	Criteria	Score	Initialed By	Pass or Fail
YMCA Bench Press Test	M-80lbs/20 reps F-35lbs/16 reps			
Sit and Reach	M-$\geq$ 13 in F- $\geq$ 16 in			
Leg Power	M- $\geq$ 16 in F- $\geq$ 12 in			
Grip Strength	M – 84kg F – 54kg			
Body Composition (BMI and BF%)	M&F $<$ 25 M: 8-22% F: 16-28%			
1.5 Mile Run	M – 14:00 or less F – 18:30 or less			

Date and Time of Test Administration
_____

Appendix 3: Final Project Rubric

EXPW 4730 - Presentation Scoring Rubric

Articles – 6 points

_____Submit professional articles: (2) Peer Reviewed; (1) Reliability of Instrument(s)

_____Submit articles on topic

Data Collection – 6 points

_____Provide sufficient practice/warm-up for testing

_____Administer tests correctly

_____Minimize measurement error

Title/Introduction – 8 points

_____Correct research question written as title

_____Establish need for study

_____Describe what should be expected based on previous articles

_____State accurate purpose of the study

Methods – 12 points

_____Describe participants

_____Report instruments

_____Report reliability/validity evidence of instruments

_____Describe Procedures accurately (reproducible)

_____Identify correct analysis

_____Ensure methods match purpose

Results – 6 points

_____Report results specific to analysis

_____ Report results that match purpose

_____Provide graph

Conclusion – 6 points

_____Discuss practical implications of results

_____Report similarities or dissimilarities to other articles

_____Report errors in data collection

Aesthetics – 6 points

_____Present professional power point (appearance)

_____Present solid oral presentation

APA – 6 points

_____APA format followed on citations in text

_____APA format followed on references

Appendix 4: Motor Development Exam Questions

Objective 1 - Demonstrate knowledge of the developmental process throughout the lifespan.

Exam Questions

1. Proximodistal refers to growth in the human body that proceeds from the
    a. Feet toward the head
    b. Head toward the feet
    c. Center or midline toward the periphery of the body (limbs)
    d. Periphery (limbs) toward the center or midline of the body
2. Cephalocaudal refers to growth in the human body that proceeds from the
    a. Feet toward the head
    b. Head toward the feet
    c. Center or midline toward the periphery of the body (limbs)
    d. Periphery (limbs) toward the center or midline of the body

Objective 2 – Discuss the interaction of cognitive and motor development throughout the lifespan.

Exam Questions

1. About 20 percent of adult stature is attained during this 2.5 to 3-year period
    a. Birth
    b. Year 3 to 5
    c. 18 years of age
    d. Adolescence
2. Which of the following growth spurts is considered “non-universal” (not everyone experiences it)?
    a. Birth growth spurt
    b. Mid-growth spurt
    c. Adolescent growth spurt
    d. None of the above

Objective 3 – Characterize prenatal development concerns.

1. Which of the following measurements of maturity is the most widely accepted for determining the stage of maturation?
    a. Genitalia maturity
    b. Skeletal age/maturity
    c. Age of menarche
    d. None of the above
2. At which point does an infant actually lose up to 10 percent of its weight?
    a. First six months
    b. 1-3 days after birth
    c. 10 days after birth
    d. Year

Objective 4– Discern the components of basic fundamental movement patterns.

Exam Questions

1. There are three major categories of early voluntary movements. Which one involves head control, body control, and upright posture?
    a. **Stability**
    b. Locomotion
    c. Manipulation
    d. None of the Above
2. Which of the following stages from the Total Body Approach of galloping is considered Stage 3 or experienced?
    a. The pattern resembles a rhythmically uneven run with the performer often reverting to the traditional running pattern. The tempo tends to be relatively fast and the rhythm inconsistent. The trail leg crosses in front of the lead leg during the airborne phase and remains in front at contact.
    b. The pattern is smooth, rhythmical, and executed at a moderate tempo. The trail leg moves in front of, adjacent to, or behind the lead leg during the airborne phase but is always adjacent to or behind the lead leg at contact. The trail leg is extended during the airborne phase, often causing the trail foot to turn out and the lead leg to flex at less than or equal to 45 degrees.
    c. **The pattern is smooth, rhythmical, and executed at a moderate tempo. The trail leg may cross in front of or move adjacent to the lead leg during the airborne phase but is placed adjacent to or behind the lead leg at contact. Both the lead and trail legs are flexed at less than or equal to 45 degrees with the feet carried close to the surface during the airborne phase.**
    d. None of the above
3. Which phase of throwing is described – "consists of all movements directed away from the intended line of projection"?
    a. **Preparatory phase**
    b. Execution phase
    c. Follow-through phase
    d. None of the above

Objective 5 - Measure children for appropriate growth and development traits.

Exam Questions

1. A weight-to-height ratio, calculated by dividing one's weight in kilograms by the square of one's height in meters and used as an indicator of obesity and underweight.
    a. Body fat percentage
    b. Muscle mass
    c. Body proportions
    d. **Body Mass Index**
2. Which of the two choices is the better indicator of maturity?
    a. **Developmental Age**

b. Chronological Age

3. _____ of Reaching and Grasping differentiates reaching and grasping, two-handed reaching, visual initiation and guidance of the reach, tactile control of the grasp?
    a. Phase I
    b. Phase II

Objective 6 – Define health-related fitness and its effect on physiological performance.

Exam Questions

1. The amount of blood that can be pumped out of the heart in 1 minute is
    a. Stroke Volume
    b. Cardiac Output
    c. VO_2 max
    d. Heart rate
2. The largest amount of oxygen a human can consume at the tissue level is
    a. Stroke Volume
    b. Cardiac Output
    c. VO_2 max
    d. Heart rate