

UNIVERSITY OF ARKANSAS PULASKI TECH

Course-Level Assessment Report Course: MATH 1303 Trigonometry Academic Year: 2020-2021

Due to Chair/Program Director and Faculty Assessment Chair by September 4



1. Name of course:	MATH 1303 Trigonometry
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Course-Level Learning Outcomes

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

The student will:

- 1. Develop an understanding of trigonometric functions
- 2. Use trigonometric relations in solving problems including circular motion
- 3. Develop an understanding of complex numbers and their trigonometric representation
- 4. Use appropriate technology
- 5. Demonstrate an understanding of trigonometric identities, equations, and applications

2. Which CLOs were addressed for the academic year?

CLO #2 – Use trigonometric relations in solving problems including circular motion CLO #5 – Demonstrate an understanding of trigonometric identities, equations, and applications

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

- CLO #1 Develop an understanding of trigonometric functions
- CLO #3 Develop an understanding of complex numbers and their trigonometric representation

4. Explain the assessment cycle.

The CLO averages were compared from Fall 2020 semester to Spring 2021 semester. All CLOs had improvements. The two strongest improvement averages were chosen to be assessed this year, and the two CLO averages that were the lowest in improvement were chosen to be assessed for the following year.



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

The assessment method was final exam questions.

For CLO #2, questions 2, 3, 4 on the exam were assessments of the objective. Question 2 required the use of the arc length formula. Question 3 required the use of the area of a sector formula. Question 4 was an application problem concerning a water wheel. Each question was a direct assessment of the course level objective.

For CLO #5, questions 2, 3, 6, 7, 8, 14-18 were assessments of the objective. With each of these exam questions, the student needed to decide which trig identity or formula should be applied to the problem. After setting up the problem, the student solved the problem and checked to see if the response was a reasonable result. These questions served as a direct assessment of the course level objective.

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

The assessment goal was a 70% success rate on each CLO.

7. What were the findings for the academic year?

The problems concerning CLO#2 are challenging for the student, due to the need for understanding which formula must be used and the trigonometry involved in solving the problem. Extra practice on these types of problems proved beneficial for the students. There was a 24.69% improvement on this learning outcome.

There were many different types of problems assessed on the final exam concerning CLO#5. Providing the students with a detailed final exam review with extra problems of this type proved beneficial for the students. A 20.92% increase was found on this learning outcome.

8. What is your analysis of the findings?

Giving the students extra practice on challenging problems was a helpful solution to improving the results of the two learning objectives considered.

During the Fall 2020 and Spring 2021 semesters, it is possible that the data is skewed due to the havoc that Covid-19 caused in the classroom. Classes that were face-to-face in years past were "hybrid," so many students could only attend class one day per week. Some did not attend class at all. Virtual attendance through Zoom or Teams was not ideal for most students. Also, all testing was done individually, away from campus. These challenges most definitely had a bearing on the overall results.



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

Due to the Covid-19 changes from last year, the Trigonometry team will continue to carefully monitor the success rates of each learning outcome. During this upcoming academic year, face-to-face classes are returning, and this will be a benefit to the students. Areas of concern for the upcoming year are CLO#1 and CLO#3 because these objectives have the smallest improvement percentages from the past academic year. The team will consider an action plan for CLO#1 – Developing an understanding of trigonometric functions. Applying the Unit Circle during class discussions and planning activities using the Unit Circle will be employed during the upcoming academic year.

An action plan for CLO#3 – Developing an understanding of complex numbers and their trigonometric representations will include spending more time on this topic. Since this topic is taught at the end of the semester, it sometimes does not get the attention that is required for appropriate student understanding. The team will place more emphasis on this lesson, and provide the students more practice.