

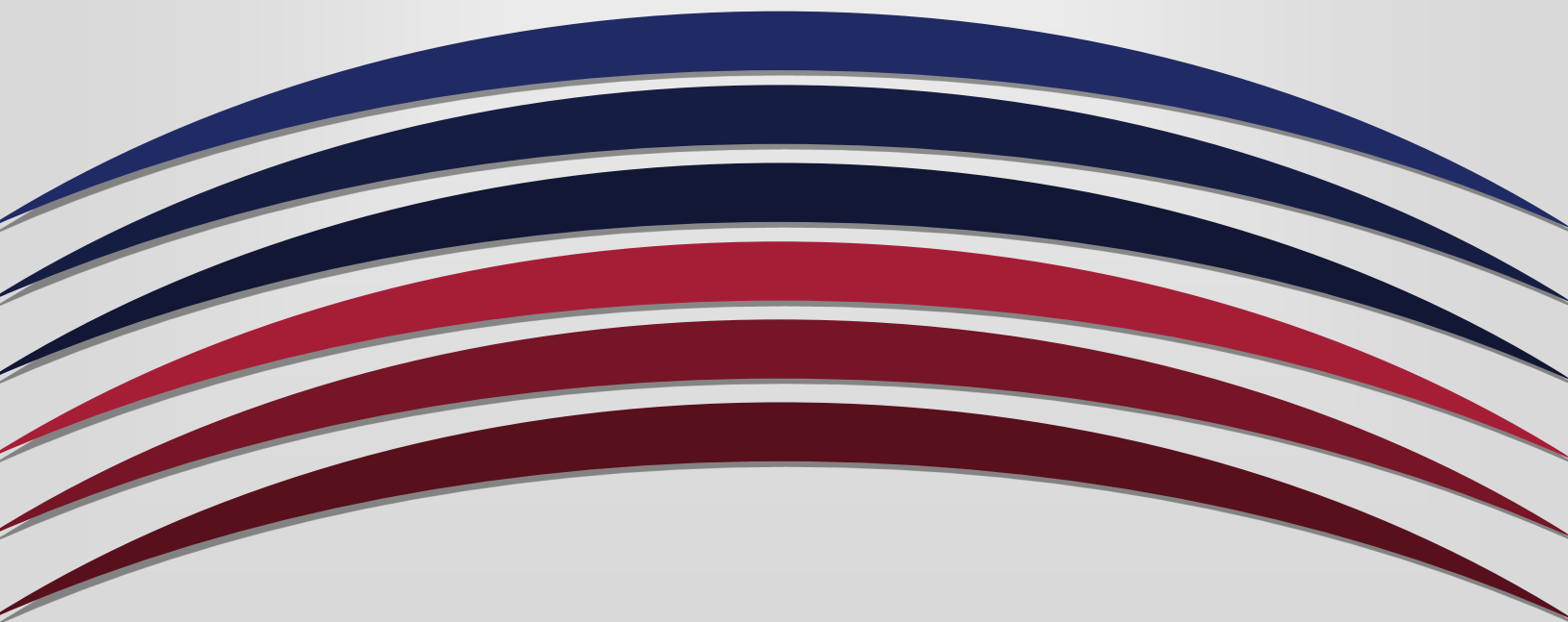
UNIVERSITY OF ARKANSAS
PULASKI TECH

Course-Level Assessment Report

Course: EDUC 2330

Academic Year: 2022-2023

Due to Chair/Program Director and Faculty Assessment Chair by
September 15



1. Name of course: EDUC 2330 Math for Teachers 1
2. Name of individual(s) compiling report: Lana Riding
3. Date of submission: September 1, 2023
4. Academic year: 2022-23

Course-Level Learning Outcomes

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

EDUC 2330 is continuing to use Course Level Outcomes which were revised for the academic year 2020 -2021. The CLOs were modified to reflect the division of course learning outcomes more accurately between EDUC 2330 and EDUC 2340. The revised CLOs were written to show the emphasis of outcomes for EDUC 2330. The new CLOs are:

1. Apply Polya's problem-solving process and strategies and build new mathematical knowledge through solving problems and in context.
2. Identify and demonstrate important properties of whole numbers, integers, rational numbers and real numbers, and multiple representations for the arithmetic operations for each.
3. Understand what growth mindset is and reflect on what it takes to foster this in teaching elementary school mathematics.
4. Discuss and demonstrate effective use and content knowledge of manipulatives in the teaching of mathematics at the K-8 school level.
5. Apply technology as an integral part of teaching and learning mathematics, whenever appropriate.

2. Which CLOs were addressed for the academic year?

All CLOs were addressed.

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

All will be addressed in the upcoming academic year.

4. How does this report connect or map to program-level or institutional-level outcomes?

(ILO link: <https://uaptc.edu/college-academics/resources/student-learning-outcomes>
PLO list will vary depending on your Program.)

Institutional Learning Outcome Map:

- CLO 1 maps to ILO 4 – Critical Thinking
- CLO 2 maps to ILO 5 – Quantitative Reasoning
- CLO 3 maps to ILO 7 – Professionalism
- CLO 5 maps to ILO 2 – Technology Literacy

The Program Learning Outcomes this course map to are the AS – Education Program:

CLO 3 and CLO 4 map to PLO 1 - Apply developmentally appropriate standards to the daily classroom practices and instructional practices.

CLO 1, CLO 2, and CLO 5 map to PLO 4 - Apply developmental domains, developmental learning theories, learning theories, technology learning theories, and instructional practices to a variety of formal education activities.

For each Course Level Outcome assessed this academic year, please complete the chart below, providing the assessment data for both fall and spring, and then a total for the academic year.

<p>Assessment Methods- How did you assess student learning (define direct assessment methods used) in relation to the course level outcome being reported?</p>	<p><i>For CLO 1, Apply Polya’s problem-solving process and strategies and build new mathematical knowledge through solving problems and in context. Students were assessed based on the results of the final exam by identifying the questions which relate to this CLO. There were ten questions which relate to CLO 1 on the final exam. It was a paper exam, taken</i></p>
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	<i>in class and proctored by the instructor. The questions were 1-6, 13, and 21-23.</i>	
Were indirect assessment methods also used to assess students? If 'yes', please describe the method used.		No <i>There was no indirect assessment given, only direct assessment.</i>
How do you define success for an individual student on the CLO assessment assignment or measure?	<i>Student scores 75% on the questions linked to the CLO</i>	
How do you define success for the course level outcome? What is the benchmark for the Course Level Outcome?	<i>75% of students in the course achieve success on the CLO assessment assignment or measure.</i>	
How many students completed the assessment, and how many were successful?	Fall <i>12 students assessed 11 successful (91.7% success rate)</i>	Spring <i>This course is only offered in the fall semester.</i>
Academic Year Total (add the numbers from Fall and Spring)	<i>12 students assessed. 11 successful (91.7% success rate)</i>	
Was the benchmark/goal for this academic year met?	Yes	
Were standardized rubrics, tests, or checklists used?	Yes	

Assessment Methods- How did you assess student learning (define direct assessment methods used) in relation to the course level outcome being reported?	<i>For CLO 2, Identify and demonstrate important properties of whole numbers, integers, rational numbers and real numbers, and multiple representations for the arithmetic operations for each. Students were assessed based on the results of the final exam by identifying the questions which relate to this CLO. There were twelve questions which</i>
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	<i>relate to CLO 2 on the final exam. It was a paper exam, taken in class and proctored by the instructor. Questions from the Final Exam were 7-12, 14-17, and 19-20.</i>	
Were indirect assessment methods also used to assess students? If 'yes', please describe the method used.		No <i>There was no indirect assessment given, only direct assessment.</i>
How do you define success for an individual student on the CLO assessment assignment or measure?	<i>Student scores 75% on the questions linked to the CLO.</i>	
How do you define success for the course level outcome? What is the benchmark for the Course Level Outcome?	<i>75% of students in the course achieve success on the CLO assessment assignment or measure.</i>	
How many students completed the assessment, and how many were successful?	Fall <i>12 students assessed 12 successful (100% success rate)</i>	Spring <i>This course is only offered in the fall semester.</i>
Academic Year Total (add the numbers from Fall and Spring)	<i>12 students assessed 12 successful (100% success rate)</i>	
Was the benchmark/goal for this academic year met?	Yes	
Were standardized rubrics, tests, or checklists used?	Yes	

Assessment Methods- How did you assess student learning (define direct assessment methods used) in relation to the course level outcome being reported?	For CLO 3, understand what growth mindset is and reflect on what it takes to foster this in teaching elementary school mathematics.
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	<i>Students were assessed based on the results of a presentation given in class, their Blackboard submission which was graded by rubric.</i>	
Were indirect assessment methods also used to assess students? If 'yes', please describe the method used.		No <i>There was no indirect assessment given, only direct assessment.</i>
How do you define success for an individual student on the CLO assessment assignment or measure?	<i>Student scores 75% on the rubric for their presentation</i>	
How do you define success for the course level outcome? What is the benchmark for the Course Level Outcome?	<i>75% of students in the course achieve success on the CLO assessment rubric.</i>	
How many students completed the assessment, and how many were successful?	Fall <i>12 students assessed 11 successful (91.7% success rate)</i>	Spring
Academic Year Total (add the numbers from Fall and Spring)	<i>12 students assessed 11 successful (91.7% success rate)</i>	
Was the benchmark/goal for this academic year met?	Yes	
Were standardized rubrics, tests, or checklists used?	Yes	

Assessment Methods- How did you assess student learning (define direct assessment methods used) in relation to the course level outcome being reported?	For CLO 4, Discuss and demonstrate effective use and content knowledge of manipulatives in the teaching of mathematics at the K-8 school level. CLO 4 was assessed along with CLO 5 using the Manipulative Project. Students choose three manipulatives to explore and present. They include
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	<i>virtual and physical manipulatives in the presentation. The assessment was completed using a rubric in Blackboard.</i>	
Were indirect assessment methods also used to assess students? If 'yes', please describe the method used.		No <i>There was no indirect assessment given, only direct assessment.</i>
How do you define success for an individual student on the CLO assessment assignment or measure?	<i>Student scores 75% on the rubric</i>	
How do you define success for the course level outcome? What is the benchmark for the Course Level Outcome?	<i>75% of students in the course achieve success on the CLO assessment rubric.</i>	
How many students completed the assessment, and how many were successful?	Fall <i>12 students assessed 12 successful (100% success rate)</i>	Spring <i>This course is only offered in the fall semester.</i>
Academic Year Total (add the numbers from Fall and Spring)	<i>16 students assessed 16 successful (100% success rate)</i>	
Was the benchmark/goal for this academic year met?	Yes	
Were standardized rubrics, tests, or checklists used?	Yes	

Assessment Methods- How did you assess student learning (define direct assessment methods used) in relation to the course level outcome being reported?	For CLO 5, Apply technology as an integral part of teaching and learning mathematics, whenever appropriate. CLO 5 was assessed along with CLO 4 through the use of the Manipulative Project. Students choose three manipulatives to explore and present. They include virtual and physical
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	<i>manipulatives in the presentation. The assessment was completed using a rubric in Blackboard.</i>	
Were indirect assessment methods also used to assess students? If 'yes', please describe the method used.		No <i>There was no indirect assessment given, only direct assessment.</i>
How do you define success for an individual student on the CLO assessment assignment or measure?	<i>Student scores 75% on assessment rubric</i>	
How do you define success for the course level outcome? What is the benchmark for the Course Level Outcome?	<i>75% of students in the course achieve success on the CLO assessment rubric</i>	
How many students completed the assessment, and how many were successful?	Fall <i>12 students assessed 12 successful (100% success rate)</i>	Spring <i>This course is only offered in the fall semester.</i>
Academic Year Total (add the numbers from Fall and Spring)	<i>12 students assessed 12 successful (100% success rate)</i>	
Was the benchmark/goal for this academic year met?	Yes	
Were standardized rubrics, tests, or checklists used?	Yes	

5. What is your analysis of the findings?

For CLO 1, as noted in previous assessment reports for EDUC 2330, students struggle with applying Polya's problem-solving process and strategies (CLO 1). They are more comfortable with being told how to solve problems. Learning to build new mathematical knowledge through solving problems and within a given context is a new skill, and the students often enter the course with a fixed

mindset. They do not believe they can accomplish this. It is a challenge for them to apply and adapt strategies to solve problems. Problem solving using Polya's process (CLO 1) is a vital skill for students who are pursuing a career in elementary education. These problem-solving skills need continued emphasis and additional opportunities for practice. We are pleased to have seen improvement to above the 75% threshold and will continue to focus efforts on improving this outcome. It could be argued that the questions on the final exam are not the purest way to assess true problem-solving skills, since the questions on the final exam are generally the types of problems that students have previously encountered. However, in lieu of a better way to assess this learning outcome, we will continue to use similar, yet not identical, problem-solving questions on the final exam.

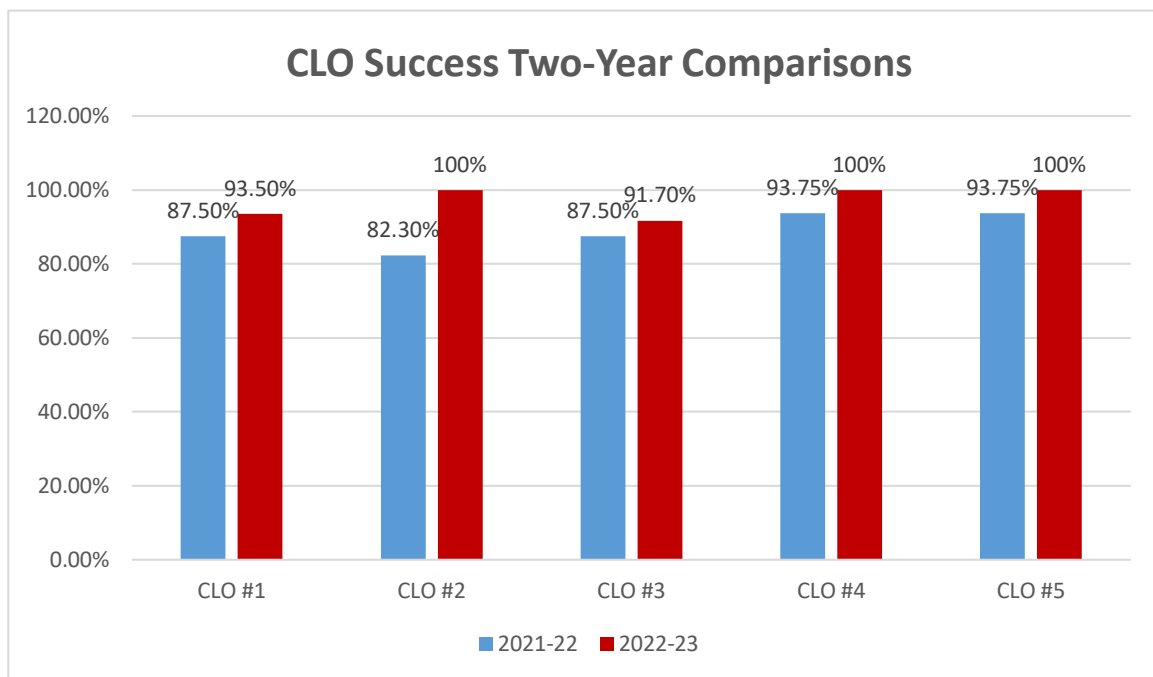
Based on this year's assessment, students continued to show progress. Eleven of the twelve students (93.5%) were able to show proficiency of higher than 75% on the final exam questions linked to CLO #1. In the previous assessment cycle (2021-22), 14 out of 16 (87.5%) of the students assessed scored higher than 75% on the questions tied to CLO 1. The one student who scored below 75% barely missed the goal by scoring 67.5%.

For CLO 2, there was an increase in the percentage of students who were successful compared to the previous academic year. Of the twelve students in the cohort, all scored higher than 75% on the questions linked to this CLO. The previous year saw 13 of the 16 (82.3%) meet the benchmark in 2021-22. This is only the second year for this CLO, as they were revised beginning last year.

CLO 3 states that students will understand what growth mindset is and reflect on what it takes to foster this in teaching elementary school mathematics. In mathematics, more than any other subject, a fixed mindset is a major obstacle to student success. As future educators, it is imperative that these students learn to recognize and combat fixed mindsets in themselves, as well as in their future students. Students complete a presentation early in the semester, as well as write an essay as part of their midterm grade on the concepts of fixed and growth mindsets. Eleven of twelve students assessed scored at or above the benchmark of 75%, which is 91.7% of the students. Last year, fourteen of sixteen students assessed scored at or above the benchmark of 75%, which was 87.5% of the students. This represents a slight increase, from 87.5% to 91.7%.

CLOs 4 and 5 were both assessed using the Manipulative Project. Students choose three manipulatives to explore and present. They must include virtual

images and photographs of physical manipulatives in the presentation. Technology is an integral part of this project, as the final product is a PowerPoint which is presented to the class. The slides are created using virtual manipulatives, links to videos or songs, and other important educational technologies. Students must be adept at projecting their presentation and engaging with their peers and the instructor. We were pleased to have 100% success, or 12 of the 12 students scoring higher than 75% on the rubric for the Manipulative Project. This represents a 6.25% increase over last year, when fifteen of the sixteen students, or 93.75% showed success. Extra time was set aside in class for peer review and feedback on rough drafts, which seems to have resulted in better projects. We will continue to allow class time for students to share their ideas with their peers.



6. What is the action plan for the upcoming academic year?

Explain.

We will continue to focus efforts on improving problem-solving skills, recognizing, and valuing growth mindsets, along with learning how to use various manipulatives in teaching mathematics, while incorporating technology whenever appropriate. The assessments completed did not show any major areas of concern. Students are generally successful in the course. One indirect measure which was reported for the previous year was the pass rate for the course, which showed 13 of the 16 students passed with either an A or a B, and there was only one student who earned a D and was required to repeat the class. This year, of

the 12 students, all earned either an A or B. One student was enrolled but withdrew before the drop date to avoid a failing grade.

Students who take the class are interested in learning how to be good elementary school math teachers, and when the material is presented in an engaging and accessible way, the students show enthusiasm and an eagerness to learn. Course evaluation comments show that the students enjoy participating in this course and truly value the skills they are learning. The students who graduate with education degrees from UAPTC are well equipped to teach mathematics in a way that will positively impact future generations of students.