



**Course-Level Assessment Project
Final Report**

To complete the Final Report, type your responses to the prompts below. Share a copy of the document with your supervisor and the Associate Provost of Assessment and Institutional Effectiveness.

Faculty Name(s): Jenelle Cutitta and Janice Stencil
Division/Department: Mathematics and Engineering
Course Assessed: MATH-118, College Algebra

Step 1. Define

Explain the purpose or rationale for assessing the selected course.

Identify which course objective(s) were assessed. Briefly explain why you selected these course objectives for assessment.

Identify to which program goal(s) selected course objective(s) align.

This course was selected to be assessed since it is a brand-new course for Fall 2022.

The following objectives were selected since they were themes that occurred with more than one topic across the course.

1. Examine rules, properties, and structures of linear and special equations/functions, such as square root, absolute value, exponential, and logarithmic (GE2, GE3)
2. Determine domain and range of various types of equations and functions (GE2)
4. Evaluate transformations of various types of functions (GE2, GE3)
5. Solve various types of equations and functions (GE2, GE3)
6. Use various elements to sketch the graph of equations and functions (GE2, GE3)

Step 2. Design

Describe the instrument (project/assignment) used to assess identified course objective(s).

What benchmarks and/or controls were established?

Explain how the assessment instrument was externally reviewed and validated.

We created two versions of common unit tests for all MATH-118 professors to use. The tests were distributed to MATH-118 professors for feedback prior to test administration. Changes were made when appropriate. The finalized tests contained a specific question with multiple parts that measured the course objectives as defined in Step 1. A grading rubric was provided to ensure consistency in grading. Course coordinators compiled the results for each specified question.

Since MATH-118 was a brand-new course, we could not compare the results to previous courses (MATH-123, MATH-124, and MATH-130). **Our benchmark for this project was that at least 70% of students will earn 70% or more of the possible points.**

We collected data on the specified questions over the Fall 2022 and Spring 2023 semesters. However, we will note that there were slight modifications/clarifications to directions/rubrics and such between semesters since the Fall 2022 semester was the first run of the course. Additionally in Spring 2023, course coordinators implemented one hand-written graded problem for each lesson, which were similar in format to those on the assessments.

Step 3. Implement

Explain how the assessment was implemented.

Did any unexpected challenges arise in implementing the assessment?

See Step 2 above.

Some challenges we faced were feedback from instructors that did not agree with the way the problems were presented and/or the provided grading rubrics. Due to this, there were times that the grading rubrics weren't followed correctly as intended by the coordinators. As the course coordinators saw these instances, the data recorded was adjusted corresponding with the coordinator's intent instead of the instructor's submission.

Step 4. Analyze

Explain the data that was collected and how the data was analyzed.

To what degree did students meet the established benchmarks?

Consider intention of learning activity and assessment as compared to results.

Instructors made copies/scans of the graded questions from the assessments. Those copies/scans were provided to the coordinators to compile the results and compare to the established benchmark in Step 2 above.

The results are as follows:

Question Topic	Fall 2022 Percent of Scores 70% or above	Spring 2023 Percent of Scores 70% or above
Function Characteristics (without Transformations)	38% (41 scores)	23% (20 scores)
Quadratic Functions (with Transformations)	47% (42 scores)	45% (32 scores)
Logarithmic Functions (with Transformations)	42% (30 scores)	59% (38 scores)
Percent of Students Passing MATH-118 with a C or Better	32% (40 students)	30% (32 students)

Unfortunately, the benchmark of 70% of students scoring 70% or above was not met either semester. However, it is important to note that the percentage of students scoring 70% or above in Spring 2023 did increase throughout the semester. This could be due to students gaining more familiarity with the format of the questions and the concepts involved, or students withdrawing from the class as the semester progressed. It is also important to note that 16 students were repeating the course in Spring 2023 (from Fall 2022).

Step 5. Modify/Maintain

Based on analysis of data, describe changes made to the course and/or course materials.

Summarize the results of implementing changes, re-administering the assessment, and collecting and analyzing new data.

As mentioned previously, an additional hand-written assignment was put into place for the Spring 2023 semester. We had hoped that with students seeing questions similar in format and content to what would be assessed and with students getting consistent clear feedback on their written work from the instructor that there would be a greater understanding overall. We believe this is part of the reason for the increase in the percentage in Spring 2023.

Other changes made to the course after Fall 2022 but before Spring 2023:

- Broke the course content into 5 units instead of 3 units
- Adjusted the ALEKS Adaptive assignments to be unit-long assignments instead of one for each individual lesson; provided students with list of topics corresponding to each lesson (to focus on those) to reach benchmarks
- Quizzes removed and replaced with the one hand-written and graded homework problem for each lesson
- Cut down some of the content that was not as important to MATH-118 or MATH-132 (Applied Calculus)
- Rearranged remaining topics for better flow

Final Results and Recommendations

Anecdotally, students and instructors preferred having the written homework assignments for each lesson instead of a quiz. It is also in the student's best interest to receive the feedback provided on the hand-written problems to correct not only conceptual understanding, but also notation and mathematical syntax. We will continue with the hand-written homework assignments for each lesson.

Coordinators will continue to provide similar questions to those given for this assessment project and collect data to monitor changes in success rates.

Additionally, coordinators are piloting the following items in the Summer 2023 semester:

- Students may use one side of a 3-inch by 5-inch notecard in their own handwriting on each of the unit assessments (both sides on the Final Exam)
- At the end of the semester, students have the option to retake one unit assessment. In order to do so, they must notify the instructor, complete corrections to the unit assessment and explain their errors (submitted to coordinators) and complete the retake with the Testing Center. The higher of the two assessment grades will be the grade of record.

Supervisor Signature _____ Date _____

Please forward a copy of the signed report to the Associate Provost of Assessment and Institutional Effectiveness.