



**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
Division/Department: Mathematics and Engineering
Course Assessed: MATH-121, Introduction to College Mathematics

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 assessed because it had a rewrite which was implemented in Fall 2023.

The following objectives were selected to be assessed as they corresponded to common questions that were given course wide.

1. Compute probabilities based on various given information using counting principles, probability rules, and normal distributions (GE2)
3. Interpret, analyze, and/or create representations of data, which may include Venn diagrams, histograms, bar charts, pie charts, stem-and-leaf plots, box plots, and frequency distributions (GE1, GE2, GE3)
4. Interpret measures of center and spread given various data or data representations (GE2)
5. Calculate quantities related to simple and compound interest (GE2)
6. Analyze quantities related to annuities and loans (GE2, GE3)
7. Use matrix operations (addition, subtraction, multiplication, inverse) to solve problems and applications (GE2)
8. Solve applications involving systems of equations using matrix equations or Gauss-Jordan elimination (GE2)

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.

I had created two common questions for each chapter test for all MATH-121 professors to use. The instructors could write their own tests (or use a full test I have provided) but were required to include the common questions in either case. The common questions developed measure the course objectives

as defined in Step 1. A grading rubric was provided to ensure consistency in grading. Instructors then provided copies/scans of graded common questions to me. I compiled the data, checked for consistency, and analyzed the results.

Fall 2023 was the first semester of the updated curriculum for MATH-121. Therefore, there wasn't previous data that directly corresponded to each of the common questions. Therefore, I did not compare the results to previous data (except for those noted later). **The benchmark for this project is that at least 70% of students will earn 70% or more of the possible points on each of the common questions.**

I collected data on the specified questions over the Fall 2023 and Spring 2024 semesters. While the overall intent of each question remained the same throughout both semesters, clarifications to directions and the grading rubrics were made in some instances.

Step 3. Implement

Explain how the assessment was implemented.

Did any unexpected challenges arise in implementing the assessment?

See Step 2 above.

In Fall 2023, there were some instances where instructors did not give the question or did not report data. Therefore, in Spring 2024, I provided instructors with a template for each test that already included the common questions and sent more reminders about the reporting of data.

In Spring 2024, I required that the common questions be the first questions within an instructor's test. The reason for this was that in Fall 2023, they were usually included last and were often not completed because students did not get to them in time or may have given up by the time they got to those questions. I believe that this did help with obtaining more accurate data.

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 me (coordinator) to compile the results and compare to the established benchmark in Step 2 above.

The results are as follows:

Question Topic	Fall 2023 Percent of Scores 70% or above	Spring 2024 Percent of Scores 70% or above
Unit 1, Data Analysis	83.95% (70 scores)	87.90% (109 scores)
Unit 1, Normal Distribution	89.47% (18 scores) * *complete data collected from only one section	83.61% (102 scores)
Unit 2, Counting Methods	34.67% (26 scores)	38.40% (48 scores)
Unit 2, Probability (with deck of cards)	82.67% (62 scores)	86.40% (108 scores)
Unit 3, Loan Options (for purchase of vehicle)	57.53% (42 scores)	73.50% (86 scores)
Unit 3, Credit Card using Average Daily Balance Method	67.12% (45 scores)	85.47% (100 scores)
Unit 4, Matrix Equations	69.70% (46 scores)	78.45% (91 scores)
Unit 4, Gauss-Jordan Elimination (with calculator)	89.55% (61 scores)	85.34% (99 scores)
Percent of Students Passing MATH-121 with a C or Better	70.24% (59 students)	76.34% (100 students)

As seen from the data above, the benchmark of 70% of students scoring 70% or above was met in nearly all objectives by Spring 2024 with the exception of Counting Methods in Unit 2. This particular topic tends to be a struggle for students. As noted in my Course-Level Assessment Project Progress Report in January 2024, this topic/question requires students to read a scenario and decide which counting method to use (fundamental counting principle/multiplication, permutation, or combination). This is something that students often find “tricky” due to the need to interpret the scenario.

In addition, there was an increase in the percentage of students meeting the benchmark for most objectives.

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.

I will continue to provide a template for each test that contains at least one common question. As mentioned previously, I will continue to require this to be the first of the questions that students have in their test. I will also collect data to track any changes in the rates above.

Summer 2024 is the last iteration of MATH-121 as it is currently. In Fall 2024, the course will change to MATH-113. The course will now be worth 4 credits and include more “just-in-time” review. The main objectives of the course will remain the same. With those changes coming and with reviewing this project, it is clear that more time and practice is still needed with the counting methods in Unit 2 of this course. This will be built into the new MATH-113 course that starts in Fall 2024.

Final Results and Recommendations

As stated above, I will continue to provide similar questions to those given for this assessment project and collect data to monitor changes in success rates. I will modify items as necessary.

Supervisor Signature Brianna L. McGinnis Date 06/03/24

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