



**Course-Level Assessment Project
Continuation 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 Research.

Faculty Name(s): Mary Virostek

Division/Department: Mathematics and Engineering

Course Assessed: MAT 099 Foundations for College Mathematics, Part 2

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.

Though this course is intended to prepare students for MATH 130 Precalculus, many students take this course as a prerequisite for other courses including Chemistry, Physics, and Finance or MATH 122 Math Concepts and Structures if pursuing a degree in Education. Though this course does not count towards graduation credit or towards most students GPA, passing the course is a requirement for many majors and for acceptance to some four-year institutions in Maryland. This course was first chosen to participate in a Course-Level Assessment due to the number of students enrolled and sections offered each semester. Over the last five years, the number of students enrolled, and sections offered has decreased significantly due to other pathways created in that range of time for many Associate degrees. However, over the past few years, a completely online course for MAT 099 has also been created and pass rates have slowly but steadily improved. This past academic year, there were no remote synchronous classes, two online classes, and four in person classes for MAT 099.

There continued to be five objectives assessed out of the twelve objectives listed for this course.

- Being able to use symbols to display mathematical meaning was assessed through using proper interval notation when solving inequalities.
- Evaluation a function occurred frequently throughout the course and was presented in similar but ever evolving ways as students first substituted numerals for variables then eventually progressing to substituting polynomials and even other functions in for variables.

- By assessing an application of solving systems of equations, not only were we able to see misconceptions in understanding the solution is where two linear equations intersect, we were also able to assess translating English sentences to mathematical equations.
- Mixture problems synthesize understanding the concept of systems of equations with a tangible example of the application of this type of mathematics. Students must understand the underlining problem along with the mathematics to solve this type of problem successfully.
- What does the quadratic formula tell us about a particular quadratic equation? Quite a bit! As gravity acts on an object, the object changes trajectory. How long will it take an object to reach its maximum height before gravity brings the object plummeting to the earth once more? What was the maximum height the object reached? When will the object be so many feet above the ground? When will the object fall to the ground? All slightly different questions that can be answered in a variety of ways. Which way is the best approach? Does the answer make sense? Students learn to think as well as compute solving application problems in quadratic form.

Since MAT 099 is not a General Education course, it does not have any program goals.

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.

Five common questions were distributed to all MAT 099 sections during the semester and these same five questions were on everyone's final exam though the questions were not identical to the previously administered tests. Four of the common questions were on the Unit 1 Test and one question worth 15% of the test score was on the Unit 3 test. For the final exam, all five questions were worth the same amount of the overall grade for a total of 12.5% of the final exam.

For consistency purposes, a detailed grading rubric was included with each of the five types of questions. For Fall 2022 and Spring 2023, professors were asked to document how many points were earned for each of the five questions during the semester and on the final exam.

Professors were given the common questions through Teams for the unit tests before the semester started and feedback was encouraged.

Step 3. Implement

Explain how the assessment was implemented.

Did any unexpected challenges arise in implementing the assessment?

Implementation: The common questions and feedback table were stored in Teams for everyone to access when needed instead of finding them in their emails. Reminders were sent out to use the questions on the Unit 1 and Unit 3 test as well as to collect the data. Since I made up the final for everyone, I did not have to share the common questions for the final in Teams. A detailed rubric was attached to the questions as well and a reminder was sent to collect the data in the End of Semester Checklist.

Data was collected using the Hawkes Learning System's Report to find the average time it took the students that completed a Certify for each objective.

	Done on time	Completed late	Did not Certify but attempted	Average Time spent on Learn	Average Time Spent on Practice	Average Time Spent on Certify	Average Time on all three	Standard Deviation of time spent on all three	Number of people that took more than one attempt to certify
7.8 Inequalities	7	0	1	0m 11s	8m 11s	28m 56s	37m 19s	15m 4s	0
	3	2	0	10m 54s	89m 44s	28m 17s	128m 56s	119m 57s	0
8.5 Functions	7	0	0	4m 16s	31m 50s	25m 29s	61m 35s	53m 22s	1
	3	1	2	21m 4s	58m 7s	21m 7s	100m 18s	123m 28s	1
9.4 System Application Problems	7	0	1	0m	14m 38s	24m 18s	38m 57s	25m 34s	1
	3	1	2	10m 34s	43m 50s	31m 58s	86m 22s	84m 25s	1
9.5 Interest and Mixture systems	7	0	1	0	14m 38s	24m 18s	38m 57s	25m 34s	1
	3	1	1	32m 44s	65m 56s	52m 19s	150m 59s	129m 58s	0
14.4 Applications of Quadratic Equations	4	2	2	0	2m 14s	21m 32s	23m 46s	19m 48s	2
	3	1	1	29m 56s	49m 46s	31m 37s	111m 20s	90m 10s	1

Hawkes data from Spring 2021 (two face to face classes) Use "Time Per Lesson" in Reports

Hawkes data from Spring 2021 (two remote synchronous classes) Use "Time Per Lesson" in Reports

	Done on time	Completed late	Did not Certify but attempted	Average Time spent on Learn	Average Time Spent on Practice	Average Time Spent on Certify	Average Time on all three	Standard Deviation of time spent on all three	Number of people that took more than one attempt to certify
7.8 Inequalities	13 17	3 1	1 0	1 min 8 sec 6m 31s	25m 55 sec 31m 31s	28m 52 sec 34m 34s	55m 55 sec 72m 35s	30m 41 sec 40m 12s	4 2
8.5 Functions	13 14	3 3	0 0	2m 23s 7m 29s	18m 47s 31m 43s	36m 38s 30m 03s	57m 48s 69m 16s	27m 05s 32m 51s	6 7
9.4 System Application Problems	12 13	3 4	1 0	0m 10s 5m 29s	10m 56s 20m 01s	30m 02s 32m 14s	41m 10s 57m 44s	18m 26s 20m 25s	2 2
9.5 Interest and Mixture systems	12 13	2 3	1 1	0m 28s 4m 4s	21m 55s 22m 19s	45m 08s 40m 28s	67m 31s 77m 29s	31m 43s 24m 54s	3 5
14.4 Applications of Quadratic Equations	9 9	5 5	2 2	1m 00s 4m 01s	18m 08s 11m 29s	22m 04s 21m 07s	22m 04s 36m 38s	33m 01s 35m 28s	6 5

Fall 2021 Asynchronous

	Done on time	Completed late	Did not Certify but attempted	Average Time spent on Learn	Average Time Spent on Practice	Average Time Spent on Certify	Average Time on all three	Standard Deviation of time spent on all three	Number of people that took more than one attempt to certify
7.8 Inequalities	15	0	0	13 min 30 sec	32 min	20 min 32 sec	66 min		1
8.5 Functions	13	0	1	21 min 36 sec	32 min	39 min 30 sec	100 min		5
9.4 System Application Problems	11	0	2	7 min	32 min 34 sec	32 min	72 min		4
9.5 Interest and Mixture systems	8	0	4	7 min 18 sec	21 min	43 min	71 min		5
14.4 Applications of Quadratic Equations	7	0	5	8 min 48 sec	33 min	23 min	64 min 48 sec		4

Spring 2022

	Done on time	Did not Certify but attempted	Average Time spent on Learn	Average Time Spent on Practice	Average Time Spent on Certify	Average Time on all three	Standard Deviation of time spent on all three	Number of people that took more than one attempt to certify
7.8 Inequalities	11 18 16		4m 24s 2m 36s 6m 56s	28m 45s 35m 15s 31m 22s	20m 25s 23m 44s 24m 30s	53m 34s 61m 37s 62m 49s	48m 53s 30m 40s 40m 25s	1 3 4
8.5 Functions	11 18 15	1	6m 26s 2m 36s 10m 13s	32m 29s 35m 15s 30m 00s	24m 17s 23m 44s 28m 35s	63m 14s 61m 37s 68m 50s	64m 13s 30m 40s 64m 13s	3 3 4
9.4 System Application Problems	12 15 16	1	0m 1s 3m 26s 5m 19s	20m 18s 26m 01s 55m 35s	33m 23s 29m 53s 33m 08s	53m 42s 59m 20s 59m 26s	25m 52s 30m 58s 43m 40s	3 6 4
9.5 Interest and Mixture systems	12 15 14	1 2	3m 13s 1m 14s 3m 05s	20m 39s 24m 52s 24m 27s	45m 54s 45m 08s 40m 57s	69m 46s 71m 16s 68m 30s	40m 44s 48m 57s 49m 00s	2 6 4
14.4 Applications of Quadratic Equations	12 7 8	6 4	3m 13s 0m 41s 6m 59s	20m 39s 7m 43s 9m 50s	45m 54s 14m 41s 16m 22s	69m 46s 23m 06s 33m 11s	40m 44s 16m 35s 38m 28s	2 4 3

Hawkes data from Spring 2022 (three face to face classes) Use "Time Per Lesson" in Reports

Key: first Bussiere's class of 12 then Carnaggio's class of eighteen then Virostek's class of sixteen

	Done on time	Did not Certify but attempted	Average Time spent on Learn	Average Time Spent on Practice	Average Time Spent on Certify	Average Time on all three	Standard Deviation of time spent on all three	Number of people that took more than one attempt to certify
7.8 Inequalities	15	1	35m 05s	35m 37s	25m 30s	96m 13s	48m 46s	3
8.5 Functions	15		39m 50s	34m 30s	36m 18s	110m 39s	54m 12s	2
9.4 System Application Problems	12	1	20m 24s	25m 49s	35m 01s	81m 15s	40m 24s	2
9.5 Interest and Mixture systems	13		32m 46s	33m 53s	59m 07s	125m 47s	73m 19s	3
14.4 Applications of Quadratic Equations	6	2	24m 23s	3m 39s	23m 26s	51m 28s	44m 55s	1

Spring 2022
Asynchronous class Use "Time Per Lesson" in Reports

For Fall 2022, I created a separate way to display the data giving me more detailed information per section while helping me compare the times depending on the class, whether an evening class, a shorter Monday, Wednesday, Friday class a daytime class or an online class.

Average Time Per Class on Sections corresponding to the Outcomes collected Fall 2022

Fall 2022 MAT 099-05(evening), MAT 099-01(MWF), MAT 099-02 (MW), MAT 099-75(online), deleted MAT 099-04 before collecting data

Section 7.8

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1	0m 05s	31m 12s	25m 8s	56m 26s	22m 57s
1.33	4m 8s	15m 32s	36m 16s	55m 57s	54m 33s
1.6	0m 29s	25m 52s	37m 38s	64m 01s	68m 57s
2	18m 24s	79m 53s	28m 54s	127m 13s	80m 40s

Section 8.5

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.9	2m 39ss	16m 11s	22m 40s	41m 31s	31m 39s
3.21	2m 46s	50m 29s	66m 30S	119m 45s	63m 50s
1.38	47m 33s	21m 21s	39m 21s	108m 15s	45m 46s
2.64	21m 26s	75m 58s	37m 48s	135m 14s	138m 34s

Section 9.3

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.11	0m 18s	12m 46s	50m 14s	63m 19s	58m 10s
1	1m 2s	19m 52s	32m 54s	53m 48s	39m 13s
2.24	4m 31s	19m 9s	67m 7s	90m 57s	89m 21s
1.25	11m 40s	71m 00s	51m 53s	134m 32s	89m 48s

Section 9.5

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1	1m 40s	12m 48s	46m 8s	60m 37s	52m 2s
1.3	0m 23s	16m 58s	46m 49s	64m 11s	41m 29s
1.46	0m 12s	30m 7s	56m 17s	86m 37s	67m 11s
1.44	14m 13s	54m 16s	42m 55s	111m 24s	96m 7s

14.4

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.5	1m 49s	9m 16s	47m 31s	58m 36s	40m 51s
1.4	1m 20s	9m 08s	31m 43s	42m 33s	40m 14s
1.91	0m 0s	29m 27s	32m 37s	62m 5s	41m 0s
2.11	9m 50s	39m 38s	51m 23s	100m 52s	63m 40s

Average Time Per Class on Sections corresponding to the Outcomes collected Spring 2023

Though there were only two classes of MAT 099 that had enough students to run this past spring semester, I decided to gather the data the same way I had for the fall. The first row are the results for MAT 099-02 (TTH) and the second row are the results for MAT 099-75. I taught both classes.

Section 7.8

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.2	7 m 12s	42m 38s	37m 35s	87m 26s	73m 00s
1.67	05m 49s	36m 17s	26m 39s	111m 21s	46m 57s

Section 8.5

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.3	54m 10s	57m 59s	46m 08s	158m 17s	129m 06s
2.54	14m 28s	92m 44s	65m 15s	172m 28s	71m 13s

Section 9.3

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.45	13m 59s	46m 43s	82m 57s	143m 40s	62m 02s
1.8	05m 23s	75m 13s	44m 55s	125m 31s	94m 08s

Section 9.5

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.3	7m 11s	34m 04s	82m 41s	123m 56s	71m 22s
1.38	10m 37s	60m 18s	31m 08s	102m 04s	74m 17s

Section 14.4

Average Attempts	Learn mean	Practice mean	Certify mean	Overall mean	Overall median
1.7	00m 00s	43m 13s	58m 31s	101m 44s	58m 05s
1.83	34m 22s	49m 19s	38m 50s	122m 31s	62m 53s

Here is the data that was collected over the last four semesters. For Fall 2021, only the average was calculated. After that, we dove deeper into the statistics behind the numbers.

Fall 2021 Outcomes Assessment Data

Unit 1, Bracket explanation	Unit 1, Evaluation a function	Unit 1, Systems of Equations Application	Unit 1, Mixture Problem	Unit 3, Quadratic Application	Final Exam, Inequalities	Final Exam, Functions	Final Exam, System of Equations Application	Final Exam, Mixture Problem	Final Exam, Quadratic Application		HLS Overall Score	Final Exam Points out of 200	Student Final Percent Grade for Course
5	10	10	10	15	5	5	5	5	5				
score	score	score	score	score	score	score	score	score	score				
3.89	8.29	9.2	8.17	8.9	4.08	4.26	3.93	3.23	2.33		81	135	77

Spring 2022 Outcomes Assessment Data

	Unit 1, Bracket explanation (Inequality?) #3	Unit 1, Evaluation a function #9	Unit 1, Systems of Equations Application (Tickets) #15	Unit 1, Mixture Problem (Milk) #14	Unit 3, Quadratic Application	Final Exam, Inequalities	Final Exam, Functions	Final Exam, System of Equations Application	Final Exam, Mixture Problem	Final Exam, Quadratic Application		HLS Overall Score	Final Exam Points out of 200	Student Final Percent Grade for Course
Possible points	5	10	10	10	15	5	5	5	5	5		100	200	100
Mean	4.1230769	6.83076923	9.369231	8.0769231	8.8490566	3.9387755	4.4693878	3.3877551	3.1020408	2.36734694		73.896441	120.18636	70.10068
Percent	82.46%	68.31%	93.69%	80.77%	58.99%	78.78%	89.39%	67.76%	62.04%	47.35%		73.90%	60.09%	70.10%
St Dev	1.2184479	2.64763592	1.420489	2.9649394	4.1004044	1.3905659	0.7932539	1.680976	1.6039651	2.36241294		27.935142	53.54332	21.78857
Median	4	8	10	10	9	5	5	3	3	2		85	137	77

Fall 2022 Outcomes Assessment

	Unit 1, Bracket explanation	Unit 1, Evaluation a function	Unit 1, Systems of Equations Application	Unit 1, Mixture Problem	Unit 3, Quadratic Application	Final Exam, Inequalities	Final Exam, Functions	Final Exam, System of Equations Application	Final Exam, Mixture Problem	Final Exam, Quadratic Application		HLS Overall Score	Final Exam Points out of 200	Student Final Percent Grade for Course
Possible Points	5	10	10	10	15	5	5	5	5	5		100	200	100%
Mean	4.1	7.3	9.5	9	10.5	3.9	3.7	3.6	3.5	2.5		74.4	131	62.8
Percent	82.00%	72.71%	95.14%	90%	70.29%	78.24%	73.5%	72.94%	70%	50.6%		74.5%	65.6%	62.8%
St Dev	1.36	2.247	1.01	1.78	4.4	1.60	1.61	1.79	1.845	2.351		27.4	49.1	33.6
Median	4	8	10	10	13	5	4	4.5	4.5	2.5		84	145	73.2

Spring 2023 Outcomes Assessment

	Unit 1, Bracket explanation	Unit 1, Evaluation a function	Unit 1, Systems of Equations Application	Unit 1, Mixture Problem	Unit 3, Quadratic Application	Final Exam, Inequalities	Final Exam, Functions	Final Exam, System of Equations Application	Final Exam, Mixture Problem	Final Exam, Quadratic Application		HLS Overall Score	Final Exam Points out of 200	Final Percent Grade for Course
Possible Points	5	10	10	10	15	5	5	5	5	5		100	200	100%
Mean	4.47058824	9.52941176	9.1176471	8.7647059	7.35294118	3.41176471	3.64705882	3.58823529	2.58823529	2.82352941		85.735294	125.94118	77.64706
Percent	89.41%	95.29%	91.18%	87.65%	49.02%	68.24%	72.94%	71.76%	51.76%	56.47%		85.74%	62.97%	77.65%
St Dev	0.79981616	1.12459143	2.1760731	2.5624552	5.66724334	1.90587328	1.93459222	2.06333539	2.2096047	2.27033296		17.720149	68.816305	19.57658
Median	5	10	10	10	10	4	5	5	3	3		95	152	84

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.

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

The first tables show the average time it took students to complete homework sections that pertained to the target objectives through Hawkes Learning System for MAT 099 classes taught from Spring 2021 through Spring 2023 when I was able to obtain the data before archiving the information. Hawkes Learning System provides this data though I had to learn how to find and use the information they collect. Part of the reason the pass rate increased for MAT 099-75 starting Fall 2022 had to do with “nudging” students through Canvas to do the Learn portion of the Hawkes Learning System and inquiring from the students which lessons could use more videos created by me and on what specific subject. Students were more than willing to inform me where they could have used more explanations. Since the online students are not in class to see examples, it is imperative that they watch the videos I made as well as the example videos provided by Hawkes Learning System. Students spent minimal time watching the examples in Spring 2021 but spent two to three times longer in subsequent semesters. The pass rate increased, though it was still below the average for the class. This pass rate did not change significantly for Fall 2022 or Spring 2023 but remained higher than the first year we offered the online option.

Those students taking the course in person did not need to work through the Learn portion of Hawkes Learning System. Practice of the concepts was also done in class for every section but the online section unless a student was absent. Those that chose to practice improved their overall grade in the course.

The second set of tables gathered the outcome assessments for the course over four semesters. Each table shows the average score students made on the five focus objectives, their overall Hawkes Learning System grades, their final exam score, and their overall scores for the course. Though these figures are significant, the student body’s background knowledge change each semester; thus, it is difficult to formulate a one-to-one correspondence in the changes that were implemented and the outcomes on the test questions. Nonetheless, I do notice that students understand mixture problems using

systems of equations on the first test then their score goes down dramatically for the same objective on the final exam semester after semester whereas the other concepts do not vary as significantly. This indicates that the final exam review needs to highlight this concept more directly as this concept should be mastered to use in both MATH 122 Math Concepts and Structures and MATH 130 Precalculus.

Insight gained from this project

I understood better the time expectations of students to complete each Certify. An unexpected positive from collecting this information was learning how to obtain this information from Hawkes Learning System and use it to identify any section that most students are taking more than the average expected amount of time to complete (60 minutes) and to alter the homework and/or guided notes for each of those sections. What I learned from this project I then shared with Kristin Hadden. Consequently, we made modifications to the Certify homework in Hawkes Learning System for all transitional courses (MAT 091, MAT 095, and MAT 099) after the Spring 2023 semester.

Step 5. Modify/Maintain

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

This Course Level Assessment Project encouraged me to look for a way to do what we already do but better. Test corrections are a highly researched and documented Best Practice in teaching. By changing when students do the test corrections benefitted the online students when taking the test. When MAT 099-75 started, we did test corrections after the test as we do with in person classes. That feedback, though beneficial, is not as timely as I would like. Also, less than 20% of our students do not complete the Hawkes Learning System Certify review before a test since this review consists of more problems than the section certifies and amounts to only 2.5% of their overall homework grade or 0.2% of their overall course grade. There are five of these reviews throughout the course. I know the benefits of reviewing for a test but 1% of the total number of points for this class is not significant for students to dedicate their limited time to completing. When the online class started doing a WebTest Review in Hawkes Learning System before taking a test, those that did this review were able to ask questions before taking the test which increased their overall score on a test. If they did the WebTest Review after taking the test, then they either learned the benefit of completing this activity before taking the test or were practicing after taking a test which also has its own benefits. Also, with HLS Certifies, students cannot skip questions but must complete the randomized questions in order but once they reach the proficiency goal of 80%, they do not have to continue. This means about 20% of the questions or concepts that may show up on a test are not reviewed before a test. In contrast, a WebTest is worth 1.7% of their total score or 8.5% overall. In a WebTest, students can skip and do all the problems they understand first, then use their notes to help them with problems they struggle with. After they complete the whole test, they can use the Open Tutor tab in Hawkes Learning System to make the appropriate corrections to their work and then they submit their original work, the corrections, and help around any problem they still do not understand. Their professor can then give them feedback based on their attempt and students can ask for help. Not only did the online students learn from their mistakes before taking a test, but I was also not grading their other test twice. Interestingly, more students did the test corrections in the WebTest review format than they did resubmitting their test again in Canvas.

Based on what I learned, all MAT 099 students will be doing the WebTest Review and Corrections from the WebTest Review for each unit and the final exam instead of the HLS review Certifies and will be making corrections on these WebTest Reviews rather than making corrections after they take their test. Students will still be encouraged to make corrections and seek help after taking a Unit Test, but this will no longer be part of their grade.

Here is a compilation of the changes made to MAT 099 over the two years of this Course Level Assessment Project

Changes made after Fall 2021 were towards instruction. Knowing the type of mistakes and the misconceptions students had coming into our classroom assisted the professors in delivering material in a more meaningful way during the 2022 spring semester. More practice problems were embedded into the guided notes to give students a chance to try and ask more meaningful questions.

For the Spring 2022 MAT 099-75 course, instead of the Book Activities due the class before a test, each activity was dispersed throughout the semester. Not only did this keep students on schedule, this shorter yet more frequent activity allowed me as the professor to give them feedback earlier in a unit and kept students more accountable.

For all transitional courses, Kristin Hadden and I implemented using the Final Exam grade to replace a lower scoring unit test grade if this substitution helped, not hindered the students' overall score. By using this in MAT 099, two students out of sixty-four in Spring 2022 went from not scoring high enough to pass to enough to take the MAT 001 self-paced completer course and two went from below a 75% to above a 75%. To pass this course, a student must have a score of 75% (unrounded) or better. From collecting and studying the data, we noticed that some students had one low test grade but showed they knew the material on the final exam. This gave students motivation to continue taking the course even with one below passing unit grade. This "reason to continue" helped many students that were going through a rough time somewhere in the semester. For example, even though the overall grade only went up by one to three percentages, twenty-eight out of sixty-four or almost 44% of the students that did not withdraw from MAT 099 benefitted from using the final exam to replace a low scoring unit test. Two students even went from a B+ to an A. This past Spring 2023 semester, I had a student that missed a whole unit's worth of material because the student's family was moving. This student earned a low F on that unit test though normally that student earned A's on tests. By reminding the student of the replacement policy, the student finished the course, learned the material from the missed unit, and earned a B on the final and a B+ in the course.

To the best of my ability, I reworked some sections of the MAT 099-75 course to promote completing activities before taking the unit tests. For example, in the face-to-face MAT 099 courses we have a review day planned in the schedule at the end of each unit. During the review day, professors can finish the unit, go over specific objectives, and allow students to ask questions or complete review materials. This opportunity was not in the schedule for the asynchronous class resulting in students not obtaining necessary feedback before taking the unit test. Though the test was available for three days in the testing center, many students did the review for the test after taking the unit test since the review was due in the middle of those three days. Including this review day prior to a test gave students a chance to catch up if they were falling behind and an opportunity to review before taking the Unit Test. More students that completed the online class (took the final), passed the course in Spring 2023.

Summer 2022, I made videos addressing specific objectives and placed these videos in all MAT 099 courses regardless of format.

With the goal of encouraging online students to read the material before the due date, I set up the Canvas course Spring 2023 so that the read and learn part was in their calendar a day before the activity corresponding to the videos and information was due. Maybe it was the students I had in the online

class this past Spring, but more students completed their assignments on time or soon thereafter. This practice will be implemented in subsequent semesters.

Final Results and Recommendations

After collecting the data and multiple meetings, Brianna McGinnis, Kristin Hadden, and I have determined that MAT 001, the course created to help those students that earned between a 70% and a 75% in transitional math, will be discontinued as of Summer 2023. Instead, students will not longer be required to earn a 75% or higher to pass MAT 099. The threshold will now be 70% and those that earn a C for any transitional course will be asked to sign up for tutoring for a minimum of the first four weeks of their next math course.

Since the review using the WebTest was so successful in the online MAT 099 course, the plan for Fall 2023 on is to remove the Hawkes Learning System Certify review and implement completing a WebTest review before a Unit Test for all MAT 099 courses, regardless of modality. Students will make test corrections on their first attempt at the WebTest and will be allowed to retake the WebTest up to three time to study with the highest WebTest score counting as their grade. I have included below the directions in Canvas and a rubric that will be used to encourage students to complete their first attempt before taking the actual test.

Taking the WebTest is only part of the grade for this activity. You may take the WebTest more than once and the highest grade will count. However, learning takes place when you understand your mistakes. Test corrections are an important study skill and best practice in the teaching field; therefore, your test corrections completed before you take the actual test count as half of the points for this activity. You may pause WebTests but try to finish all at one time, if possible.

To complete your test corrections:

- Start by reviewing your first attempt of the WebTest
- For questions that were incorrect or not answered, explain what your mistake was in words and use the open tutor button to re-do the problem correctly showing each step.
- You can complete the test corrections using your notes, HLS Open Tutor, and/or with a Carroll Community College tutor. You may also ask your professor for help with a particular problem.
- Submit this work in Canvas after your first attempt at the WebTest. If you take the WebTest multiple times, only the best grade counts towards your HLS homework grade.
- If you earned an A on the WebTest, explain in a couple of sentences which concept in this unit caused you the most trouble and how you successfully learn this material.

Remember, there are multiple ways to solve every problem. Show how you are attempting the problem so that the subsequent feedback follows your preferred method. Leaving a problem completely blank will not assist your professor in helping you.

Review WebTest and Test Corrections Rubric

Review WebTest and Test Corrections Rubric			
Criteria	Ratings		Pts
Turned in the Test Corrections in Canvas by the due date.	4 to >3.0 pts Full Marks	3 to >0 pts No Marks	4 pts
Made appropriate corrections to all incorrect responses and explained in words why points were deducted. If the student earned an A on the test, the student answered the questions associated with their grade.	6 to >1.0 pts Full Marks	1 to >0 pts No Marks	6 pts
Score on WebTest Proportional grade based on highest WebTest grade.	10 to >9.9 pts Full Marks 100% on WebTest	9.9 to >0.5 pts Partial Credit Proportional grade based on WebTest grade	10 pts
Total Points: 20			

Supervisor Signature _____ Date _____

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