Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	125	MTH 125 05/29/2025-Everyday College Math
College	Division	Department
Math, Science and Engineering Tech	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Angela Kenrick
Date of Last Filed Assessment Report		01/04/2023

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   Winter Semester 2022 (report submitted 5/2022)

2. Briefly describe the results of previous assessment report(s).

   Students met the standard of success for all outcomes. Winter 2022 semester, students with a math level of 2 were enrolled in MTH 125S which was a corequisite support course, and student with a math level of 3 or higher could choose to take MTH 125S if they felt they would need the extra support. Therefore, all below level students and some at/above level received two additional hours of instructional support outside of MTH 125. Modules were reordered to give students more time to learn functions.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   Guided notes, video tutorials, in-class assignments, and exam reviews with keys were provided to all MTH 125 sections to promote repeated exposure to the required exercises beginning in the Fall of 2022. These materials were built into the course masters in Blackboard posted for all modalities. We also moved functions to later in the semester to give students time to learn functions.

II. Assessment Results per Student Learning Outcome

Outcome 1: Perform consumer finance calculations for interest, loans, annuities, and mortgages.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2025	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
286	223

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students who did not take both exams due to course withdrawal or absence were not assessed. All students who took both departmental common exams (Midterm Exam and Final Exam) were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All exams were assessed from all sections and modalities of the course.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to Questions #1, #2, #5, and #6 on the Midterm Exam were scored using a 5-part rubric (scale: 0, 0.25, 0.5, 0.75, 1) based on work shown

and/or margin of error. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No
152/223 students met the standard of success. This is 68% which is slightly below the goal of 70%. I broke down the success rate per question and found the following: Question #1 – 178/223 (80%) scored at least 75% Question #2 – 157/223 (70%) scored at least 75% Question #4 – 173/223 (78%) scored at least 75% Question #5 – 148/223 (66%) scored at least 75%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did best on Question #1 which asks them to find the interest rate given a principal and monthly payment plan. This shows that they understand that the difference between the amount borrowed and the amount paid back to the lender is interest. Question #4 proved to be another area of strength in which students have to find the average daily balance on credit card purchases and calculate interest. This is a tedious process with multiple steps involving the four basic functions. Repeated exposure to this type of problem has been really helpful in supporting their achievement.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students had the most trouble with the student loan question which was Question #5. This question asks students to compare the difference between capitalizing interest and not capitalizing interest on a student loan. Students get confused differentiating between the time interest accrues and the term of the loan. Given the multiple steps of this problem, there are a lot of opportunities to make small errors that may lead to a final answer that is thousands of dollars off. Additionally,

for online and virtual students, the question itself had a bug that we worked with McGraw Hill to fix. Question #2 seemed to be somewhat challenging since only 70% of students scored 75% or better. This question is similar to Question #1 with the difference being that students must calculate the principal of the loan (sales price plus tax) and then find the interest rate. This again requires multiple steps, appropriate rounding, and mathematical precision along the way in order to arrive at an accurate rate. Students need more direction as to when it is appropriate to round to the nearest cent and when it is not appropriate to round.

Outcome 2: Calculate operations on sets and use Venn diagrams to answer questions involving "and", "or", and "not".

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2025	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
286	223

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students who did not take both exams due to course withdrawal or absence were not assessed. All students who took both departmental common exams (midterm and final) were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All exams were assessed from all sections and modalities of the course.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to Questions #7, #8, #9, and #10 on the Midterm Exam were scored using a 5-part rubric (scale: 0, 0.25, 0.5, 0.75, 1) based on work shown and/or margin of error. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

193/223 students met the standard of success. This is 87% which is above the goal of 70%. I broke down the success rate per question and found the following:

Question #7 – 212/223 (95%) scored at least 75%

Question #8 – 185/223 (83%) scored at least 75%

Question #9 – 185/223 (83%) scored at least 75%

Question #10 – 188/223 (84%) scored at least 75%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did really well on Question #7 which assesses whether they are able to identify the intersection of two sets using a Venn diagram. Questions #8, #9, and #10 were also 13-15% above the standard of success, so this means that students are understanding concepts of set operations and applications involving “and”, “or”, and “not”.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Overall students did really well on this outcome, so I think the best plan of action is to continue providing the support materials, videos, and exercises that reinforce the concepts.

Outcome 3: Identify and state domain and range; graph and interpret linear, quadratic and exponential functions.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

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Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
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2. Provide assessment sample size data in the table below.

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286	223

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students who did not take both exams due to course withdrawal or absence were not assessed. All students who took both departmental common exams (midterm and final) were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All exams were assessed from all sections and modalities of the course.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to Midterm Exam Questions #3 and #6 and Final Exam Questions #5 and #6 were scored using a 5-part rubric (scale: 0, 0.25, 0.5, 0.75, 1) based on work shown and/or margin of error. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
188/223 students met the standard of success. This is 84% which is above the goal of 70%. I broke down the success rate per question and found the following: Midterm Exam Question #3 – 175/223 (78%) scored at least 75% Midterm Exam Question #6 –168/223 (75%) scored at least 75% Final Exam Question #5 – 196/223 (88%) scored at least 75% Final Exam Question #6 – 223/223 (100%) scored at least 75%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did best on Final Exam Question #6. This question requires students to evaluate a linear function in a real-world context. Students also scored well on Final Exam Question #5 on which they interpret the graph of a linear function in a real-world context. At this point in the semester, students have had ample exposure and substantial practice with these types of questions, so we should continue providing these supports.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

In general students did really well on this outcome, but they scored the lowest on Midterm Questions #3 and #6. These questions require students to evaluate exponential function given values of variables in context. Students could benefit from more practice with this type of problem, and clearer directions on order of operations and rounding when working in complex functions involving exponents.

Outcome 4: Calculate probabilities including those using addition and multiplication rules; solve probability problems.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2025	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
286	223

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students who did not take both exams due to course withdrawal or absence were not assessed. All students who took both departmental common exams (midterm and final) were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All exams were assessed from all sections and modalities of the course.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to Questions #1, #2, #3, and #4 on the Final Exam were scored using a 5-part rubric (scale: 0, 0.25, 0.5, 0.75, 1) based on work shown and/or margin of error. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
215/223 students met the standard of success. This is 96% which is well above the goal of 70%. I broke down the success rate per question and found the following: Question #1 – 213/223 (96%) scored at least 75% Question #2 – 212/223 (95%) scored at least 75% Question #3 – 214/223 (96%) scored at least 75% Question #4 – 210/223 (94%) scored at least 75%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students in all modalities performed very well on skills related to this outcome.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Student performance is solid related to this outcome, so we will continue to support their learning using the materials we designed in the Fall of 2022. We will continue to reinforce calculating probabilities using multiplication and addition rules and how they relate to the words “and” and “or”.

Outcome 5: Calculate and interpret statistics, including measures of center and spread, and make predictions based on the normal curve.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students.
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of the students will score 75% or higher (3 out of 4) on outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2025	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
286	223

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Students who did not take both exams due to course withdrawal or absence were not assessed. All students who took both departmental common exams (midterm and final) were assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All exams were assessed from all sections and modalities of the course.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to Questions #7, #8, #9, and #10 on the Final Exam were scored using a 5-part rubric (scale: 0, 0.25, 0.5, 0.75, 1) based on work shown and/or margin of error. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
185/223 students met the standard of success. This is 83% which is above the goal of 70%. I broke down the success rate per question and found the following: Question #7 – 213/223 (96%) scored at least 75% Question #8 – 219/223 (98%) scored at least 75% Question #9 – 144/223 (65%) scored at least 75% Question #10 – 166/223 (74%) scored at least 75%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did best on Questions #7 and #8 which require them to find statistics on given data in context. We will continue to provide practice with these exercises to be sure we continue to meet the standard of success.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The lowest score was related to Question #9, which measures students' ability to find compound probabilities involving the normal curve. This question is particularly tricky if students try to rely on rules for calculating rather than using models of the normal curve in conjunction with the rules. This applies to Question #10 as well. Moving forward, we should stress the importance of drawing a model to visualize the area under the normal curve for which students are being asked to find the probability.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

The changes we implemented helped to improve student learning related to Outcome #2 (increase of 4%), Outcome #4 (increase of 3%), and Outcome #5 (increase of 4%). The guided notes, video tutorials, in-class assignments, and exam reviews with keys supported student learning and provided lots of opportunities for them to practice. Outcome #1 decreased by 2% and Outcome #3 decreased by 6%. In the previous report, there was a total of 6 questions related to SLO #1 and only 2 questions related to SLO #3. In this report, the questions were evenly distributed (4 questions per outcome) which affected the comparison. Additionally, the previous report was based off of students who were enrolled in/could choose to enroll in a corequisite support course. We no longer offer the corequisite support course. This was even beneficial to "at level" students who have been out of the classroom for several years.

Another change that seemed to help student success was moving functions to after probability instead of having it right after the midterm which is really difficult. This makes the pacing of the course more manageable for students.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This course strengthens students' understanding of mathematics in our everyday lives as it fulfills an important degree requirement for non-STEM learners. The finance topics really help students to learn the effects of borrowing/investing money, and it teaches them how interest applies to the borrower, the lender, and the investor. Topics in Set Theory help students to organize information and think critically, while probability, functions, and statistics connect math in real-world contexts. This assessment did bring to light that we to need adjust our assessment tool so that each SLO has the same number of questions used for assessment purposes. A really important positive outcome of the course (that is not stated in the SLO's) is that this course encourages perseverance and grit. Students work really hard throughout the semester, and those who successfully finish the course strengthen their self-efficacy in mathematics.

On another note, we also worked with McGraw Hill to adjust the answer tolerance policy for the student loan question. Online and virtual students are assessed on ALEKS, and we discovered that there was a bug in the algorithm. This has been fixed by McGraw Hill, so hopefully we will see increased success with this question, although it has historically been a tricky topic for students in all modalities of the course.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This report will be shared at the department meeting during Fall In-Service.

4.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Change wording of SLO #3 from "Identify and state domain and range; graph and interpret linear, quadratic and exponential functions" to "Evaluate and interpret models of linear, quadratic, and exponential functions; use graphs and equations to identify trends and make predictions in context."	This wording better describes what we are expecting students to know and be able to do related to functions and what we are assessing.	2025
Objectives	Change course objective #2 from "Solve problems relating to mortgages. Calculate mortgage payments including tax and insurance liabilities and amortization tables" to "Solve problems relating to mortgages. Calculate down payment, principal, monthly payment, total interest paid on mortgages, and compute	This language better describes what we are covering in the course and provides clarity for anyone reading the master syllabus.	2025

	amortization tables.”		
Objectives	Change course objective #15 from “Represent linear models in various ways: table, equation or graph” to “Represent linear and nonlinear models in various ways including tables, equations, and graphs.”	This language provides more clarity by including nonlinear functions.	2025
Objectives	Add course objectives related to functions: 16. Identify the mathematical domain and range of functions, and determine plausibility in context. 17. Find x- and y-intercepts of functions; interpret and communicate applications of x- and y- intercepts.	We need to have at least three clear objectives related to functions documented in the master syllabus.	2025
Objectives	Add course objective #18 which will be “Employ quantitative reasoning to communicate mathematical solution paths, explain mathematical results symbolically, visually, and/or	This provides evidence to our transfer partners that we are requiring students to develop these skills for quantitative reasoning pathway per the Michigan Transfer Agreement.	2025

	numerically, and justify quantitative arguments in writing."		
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	We will add supplemental videos/guided notes focused on capitalized vs. non-capitalized interest, when to round/not round when calculating interest, and finding the probability of mutually exclusive events under the normal curve.	These were the lowest scoring questions on common exams. Students would benefit from step-by-step video tutorials/guided notes to increase exposure to these more difficult exercises and better prepare them for the common Midterm Exam and Final Exam.	2025

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

Winter 2025 Data
Rubric

Faculty/Preparer:	Angela Kenrick	**Date:** 06/05/2025
Department Chair:	Nichole Klemmer	**Date:** 06/12/2025
Dean:	Tracy Schwab	**Date:** 06/13/2025
Assessment Committee Chair:	Jessica Hale	**Date:** 09/17/2025

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	125	MTH 125 05/06/2022-Everyday College Math
College	Division	Department
	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Leslie Gilbert
Date of Last Filed Assessment Report		08/31/2021

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

Yes Yes, for Fall 2020.

2. Briefly describe the results of previous assessment report(s).

Students met the standard of success for all outcomes. Changing the in-class assignments and the addition of daily worksheets improved the standards of success in three out of four of the outcomes. This is an excellent course for students who need a college level math credit but are not in an area that emphasizes mathematics.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

Outcomes: Departmental consideration is being given to splitting outcome 4 into two separate outcomes, one for probability and one for statistics. NEW OUTCOMES ARE: 1. Perform consumer finance calculations for interest, loans, annuities, and mortgages. 2. Calculate operations on sets and use Venn diagrams to answer questions involving "and", "or", and "not".

3. Identify and state domain and range; graph and interpret linear, quadratic and exponential functions. 4. Calculate probabilities including those using addition and multiplication rules; solve probability problems. 5. Calculate and interpret statistics, including measures of center and spread, and make predictions based on the normal curve. **Course Materials: Review and development of daily worksheets and in-class assignments.** Additional review materials were provided to all faculty before Fall 2022, and guided notes included in-class assignments with keys.

II. Assessment Results per Student Learning Outcome

Outcome 1: Perform consumer finance calculations for interest, loans, annuities, and mortgages.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
309	69

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 309 students who were enrolled, 226 completed the assessment tool related to these questions. From each section, a random number generator was used to select at least 25% of the students for each section. Sections with larger enrollments were represented roughly proportionally to their number of students. That provided 72 students which is 32% of the 226 students who completed the tool. Data was missing for three students.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, virtual classroom and online. One section of face-to-face was missing the midterm questions.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to questions 1-6 on the midterm exam were scored using rubrics based on the parts of the questions that were completed correctly. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #1, 70% of the sampled students (48/69) scored 75% or higher. This is just barely meeting the standard for success. Given that this is close to not meeting the standard of success, I also looked at the average score for each question, shown here. #1 had an average score of 80.9% #2 had an average score of 79.41% #3 had an average score of 78.01%

#4 had an average score of 82.12%

#5 had an average score of 69.63%

#6 had an average score of 85%

Per this data, the most problematic question for students was the student loan question.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did best on the mortgage question (#6) with 85% success. The questions involving installment payments (#1, 2) are multistep problems that students often struggle with when they are first learning, so roughly 80% success on those problems (with no ability to earn partial credit for online students) is quite good.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students had the most trouble with the student loan question, which was #5, and only had an average score of 69%. This question has some key differences from problems that are practiced at different times in the course, particularly related to whether or not the student chooses to capitalize the interest during the time in school.

Outcome 2: Calculate operations on sets and use Venn diagrams to answer questions involving "and", "or", and "not".

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
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Of the 309 students who were enrolled, 226 completed the assessment tool related to these questions. From each section, a random number generator was used to select at least 25% of the students for each section. Sections with larger enrollments were represented roughly proportionally to their number of students. That provided 72 students which is 32% of the 226 students who completed the tool. Data was missing for three students.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, virtual classroom and online. One section of face-to-face was missing the midterm questions.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to questions 7-10 on the midterm exam were scored using rubrics based on the parts of the questions that were completed correctly. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #2, set theory and Venn diagrams, 83% of the sampled students (57/69) scored 75% or higher. This is solidly meeting the standard for success.

The averages for the related questions are as follows: #7 had an average score of 98% #8 had an average score of 89% #9 had an average score of 82% #10 had an average score of 80%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students demonstrated strong mastery of the concepts overall. Question 8 is a tricky set theory question that is fairly abstract, so 89% average is very good!

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Considering the level of difficulty for the lower scoring problems (#9 and #10), the average scores of 80% and 82% are strong. These problems are already well taught and reviewed, but it would benefit students to have additional mixed practice in answering different phrasing of questions using a three circle Venn diagram.

Outcome 3: Identify and state domain and range; graph and interpret linear, quadratic and exponential functions.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
309	72

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 309 students who were enrolled, 226 completed the assessment tool related to these questions. From each section, a random number generator was used to select at least 25% of the students for each section. Sections with larger enrollments were represented roughly proportionally to their number of students. That provided 72 students which is 32% of the 226 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, virtual classroom and online. One section of face-to-face was missing the midterm questions.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to questions 1, 2 on the final exam were scored using rubrics based on the parts of the questions that were completed correctly. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #3, functions, 90% of the sampled students (65/72) scored 75% or higher. This is solidly meeting the standard for success. The averages for the related questions are as follows:

#1 had an average score of 90% #2 had an average score of 99%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did particularly well on the linear equations application problem.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Student performance was strong for this outcome.

Outcome 4: Calculate probabilities including those using addition and multiplication rules; solve probability problems.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
309	72

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 309 students who were enrolled, 226 completed the assessment tool related to these questions. From each section, a random number generator was used to select at least 25% of the students for each section. Sections with larger enrollments were represented roughly proportionally to their number of students. That provided 72 students which is 32% of the 226 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, virtual classroom and online. One section of face-to-face was missing the midterm questions.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to questions 3, 4, 5, 6 on the final exam were scored using a rubric based on the parts of the questions that were completed correctly. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #4, probability, 93% of the sampled students (67/72) scored 75% or higher. This is solidly meeting the standard for success. The averages for the related questions are as follows: #3 had an average score of 94% #4 had an average score of 91% #5 had an average score of 95% #6 had an average score of 92%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students demonstrated excellent mastery of all probability-related concepts, including probability for large sample size, probability given a table, and the concept of "OR" with mutually exclusive or not-mutually exclusive sets on a table.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

For #4, the concept of "OR" with mutually exclusive or not-mutually exclusive sets was also explored, but instead of a table, students were given a description. The fact that this problem was a lower score indicates that students may have a harder time applying that idea when not given a table. Still, that problem had a strong average of 91%.

Outcome 5: Calculate and interpret statistics, including measures of center and spread, and make predictions based on the normal curve.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Fall 2023
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students.
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of the students will score 75% or higher (3 out of 4) on outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2022	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed

309	72

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 309 students who were enrolled, 226 completed the assessment tool related to these questions. From each section, a random number generator was used to select at least 25% of the students for each section. Sections with larger enrollments were represented roughly proportionally to their number of students. That provided 72 students which is 32% of the 226 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, virtual classroom and online. One section of face-to-face was missing the midterm questions.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The student responses to questions 7-10 on the final exam were scored using rubrics based on the parts of the questions that were completed correctly. These scores were recorded and used to calculate the percentage of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #5, statistics, 79% of the sampled students (57/72) scored 75% or higher. This is meeting the standard for success. The averages for the related questions are as follows: #7 had an average score of 97% #8 had an average score of 96% #9 had an average score of 72% #10 had an average score of 74%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Questions 7 and 8 were related to the measures of center and position in Module 9 in the course and students performed very well here!

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Questions 9 and 10 were related to the normal distribution in Module 10 in the course. Students struggled much more on these questions. The question #9 included a more complicated area under the curve that combines problems that students have studied in depth into one problem.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

CHANGE: Outcomes: Departmental consideration is being given to splitting outcome 4 into two separate outcomes, one for probability and one for statistics. The new outcomes spread the topics out more appropriately, thereby fitting the timeframe and organization of the course. The new outcomes clarify if/where students are successful on each. CHANGE: Course Materials: Review and development of daily worksheets and in-class assignments. Additional review materials were provided to all faculty, and guided notes included in-class assignments with keys. Students met the standard of success for each outcome overall.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This course provides students with a strong understanding of financial concepts in math, some ways of organizing groups including Venn diagrams and analysis, as well as core concepts in probability and statistics. The focus of this course, even in the "most mathematical" topic of functions, is on making math relevant to students who are headed into a non-STEM career. Students respond well to the course - even math-phobic students! The combination of practical applications, excellent

practice materials, and strong organization and structure across the sections leads to student success for students who attend and work hard on the material.

The assessment process showed the difference in student success with the problems that are a bit beyond what they practiced in class. Namely, the problem in Outcome 1 on student loans and the problem in Outcome 5 on more complex areas under the normal curve had lower average scores. Students rely heavily on practice to reach mastery. It makes sense that those problems, which are a bit different than their earlier practice problems, would be weaker.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This report will be shared at a department meeting and through an email group to instructors of the course.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Change SLO 3 from "Identify and state domain and range; graph...", to "Identify and state domain and range of a function, graph...".	Clarification of wording.	2022
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	Course Materials: we will adjust the shared Guided Notes and related videos for the class to include the following examples: o For outcome 1, we will include a high quality example of a similar	Providing high quality instruction for both in-class and online students for each of these special types of problems will help students expand their knowledge prior to approaching the midterm and final, giving extra time to practice and ask questions.	2022

	student loan problem that deals with the special case of capitalized vs non-capitalized interest. ○ For outcome 2, we will expand on the mixed practice questions on how to interpret a three-circle Venn diagram. ○ For outcome 5, we will add an example where students must compute multiple areas under the curve in different ways and add those together.		

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

Outcome 3 Data
Outcome 1 Data

Outcome 2 Data
Outcome 4 Data
Outcome 5 Data

Faculty/Preparer:	Leslie Gilbert	**Date:** 05/19/2022
Department Chair:	Lawrence David	**Date:** 05/26/2022
Dean:	Victor Vega	**Date:** 06/20/2022
Assessment Committee Chair:	Shawn Deron	**Date:** 12/23/2022

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	125	MTH 125 03/05/2021-Everyday College Math
College	Division	Department
	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Laura Perez
Date of Last Filed Assessment Report		10/18/2019

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   It was assessed on 10/18/2019.

2. Briefly describe the results of previous assessment report(s).

   Student performance has increased since we split the final exam. Initially, we put five questions on each exam. The instructors felt that this was too short, so we expanded it to ten questions each, which was assessed in this report. This gives the opportunity to delineate which topics need more work. Five questions were not enough to cover all of the material.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   We have added additional assignments to the course, including in-class assignments to summarize each module and worksheets to promote repetition in problem areas. We updated the homework to the new, enhanced model that doesn't require Flash capability.

II. Assessment Results per Student Learning Outcome

Outcome 1: Perform consumer finance calculations for interest, loans, annuities, and mortgages.

- Assessment Plan

- Assessment Tool: Outcome-related test questions
- Assessment Date: Winter 2022
- Course section(s)/other population: All sections
- Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
- How the assessment will be scored: Departmental rubric
- Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2020		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
384	81

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 384 students who were enrolled, 306 completed the assessment tool. From each section, a random number generator was used to select at least 25% of the students for each section. That provided 81 students which is 26.5% of the 306 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, virtual and online.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The outcome we assessed for this area reads: Outcome #1 Perform consumer finance calculations including interest, loans, annuities and mortgage calculations.

The student responses to questions 1 -6 on the midterm exam were scored using a rubric. The scale of the rubric was:

0=No response of value

1 = 25% correct

2 = 50% correct

3 = 75% correct

4 = 100% correct

These scores were recorded, and multiple evaluations were conducted, including calculation of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The result for outcome #1 was a mean score of 79% of the sampled students achieving the benchmark. The standard of success states that the mean grade on the assessed questions will be at least 75%. When reviewing the number and percent of scores that were 3 or 4, 79% of the students (64/81) achieved this benchmark, and this does meet the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

We made changes to the In-Class Assignments aligning them with the Midterm and Final Exam Reviews and created daily activities for faculty use. All faculty and tutors were given access to these materials and their keys. We found an increase in the percentage of students that succeeded on this outcome through the collaboration of faculty and repetition of the problems in the new daily activities.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Student loans and mortgage payment were areas where students scored the lowest, although students met the standard of success. We will continue to offer reviews and repetition to improve in these challenging areas if possible.

Outcome 2: Calculate operations on Sets and use Venn diagrams to answer questions involving "and", "or", and "not".

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Winter 2022
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2020		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
384	81

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 384 students who were enrolled, 306 completed the assessment tool. From each section, a random number generator was used to select at least 25% of the students for each section. That provided 81 students which is 26.5% of the 306 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, virtual and online.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The outcome we assessed for this area reads: Outcome #2 Calculate operations on Sets and use Venn Diagrams to answer questions involving "and", "or" , and "not" The student responses to questions 7 -10 on the midterm exam were scored using a rubric. The scale of the rubric was: 0=No response of value 1 = 25% correct 2 = 50% correct 3 = 75% correct 4 = 100% correct These scores were recorded, and multiple evaluations were conducted, including calculation of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The result for outcome #2 was a mean score of 87.7% of the sampled students (71/81) achieving the benchmark. The standard of success states that the mean grade on the assessed questions will be at least 75%. When reviewing the number and percent of scores that were 3 or 4, 87.7% of the scores achieved this benchmark, and this does meet the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Areas of strength include set operations, like intersection and union. Repetition of problems using the new work sheets and in class assignments has resulted in higher performance levels.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Challenging areas include more complicated set operations and Venn diagrams to solve story problems. Based on our assessment, we need to continue to review and improve the worksheets that offer repetition in these areas.

Outcome 3: Identify and state domain and range, graph and interpret linear, quadratic and exponential functions.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Winter 2022
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2020		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
384	81

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 384 students who were enrolled, 306 completed the assessment tool. From each section, a random number generator was used to select at least 25% of the students for each section. That provided 81 students which is 26.5% of the 306 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, virtual and online.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The outcome we assessed for this area reads: Outcome #3 Identify and state, Domain and Range, graph and interpret Linear, Quadratic,and Exponential Functions.

The student responses to questions 1 and 2 on the final exam were scored using a rubric. The scale of the rubric was:

0=No response of value

1 = 25% correct

2 = 50% correct

3 = 75% correct

4 = 100% correct

These scores were recorded, and multiple evaluations were conducted, including calculation of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The result for outcome #3 was a mean score of 92.6% of the sampled students (75/81) achieving the benchmark. The standard of success states that the mean grade on the assessed questions will be at least 75%. When reviewing the number and percent of scores that were 3 or 4, 92.6% of the scores achieved this benchmark and this does meet the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Areas of strength include interpreting lines, graphing lines and evaluating functions.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Challenging areas include quadratic equations and exponential functions. Continued review and development of worksheets to allow for further repetition is planned.

Outcome 4: Calculate and interpret statistics including measures of center and spread and predictions based on the normal curve. Calculate probabilities including those using addition and multiplication rules. Solve probability problems.

- Assessment Plan
    - Assessment Tool: Outcome-related test questions
    - Assessment Date: Winter 2022
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of 25% of students with a minimum of 50 students
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% of students will score 75% (3 out of 4) or higher on the outcome-related questions.
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2020		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
384	81

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Of the 384 students who were enrolled, 306 completed the assessment tool. From each section, a random number generator was used to select at least 25% of the

students for each section. That provided 81 students which is 26.5% of the 306 students who completed the tool.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, virtual and online.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The outcome we assessed for this area reads: Outcome #4 Calculate and interpret statistics including measures of center and spread and predictions based on the normal curve. Calculate probabilities including those using addition and multiplication rules. Solve probability problems. The student responses to questions 3 -10 on the final exam were scored using a rubric. The scale of the rubric was: 0=No response of value 1 = 25% correct 2 = 50% correct 3 = 75% correct 4 = 100% correct These scores were recorded, and multiple evaluations were conducted, including calculation of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
The results for outcome #4 was a mean score of 96.3% of the sampled students (78/81) achieving the benchmark. The standard of success states that the mean grade on the assessed questions will be at least 75%. When reviewing the number and percent of scores that were 3 or 4, 96.3% of the scores achieved this benchmark and this does meet the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Areas of strength include simple probabilities and measures of center.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Challenging areas include more complicated probability problems, such as conditional probability and predictions based on the normal curve. Continued development and review of worksheets to help with repetition in these areas is planned. Discussion is underway to consider splitting this outcome into two separate outcomes to allow further refinement of our study of students' abilities in the two areas of probability and statistics.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

Changing the in-class assignments and the addition of daily worksheets improved the standards of success in three out of four of the outcomes.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This is an excellent course for students who need a college level Math credit but are not in an area that emphasizes mathematics.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This report will be shared at a department meeting and through an email group to instructors of the course.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date

Outcome Language	Departmental consideration is being given to splitting outcome 4 into two separate outcomes, one for probability and one for statistics.	This would allow better focus on each area.	2021
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	Review and development of daily worksheets and in-class assignments.	These assignments are more reflective of the outcomes of the course.	2021

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

MTH 125 assessment data

Faculty/Preparer:	Laura Perez	**Date:**	04/09/2021
Department Chair:	WCC Default	**Date:**	05/26/2021
Dean:	Victor Vega	**Date:**	06/16/2021
Assessment Committee Chair:	Shawn Deron	**Date:**	08/30/2021

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	125	MTH 125 08/09/2019-Everyday College Math
Division	Department	Faculty Preparer
Math, Science and Health	Mathematics	Laura Perez
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   Fall 2016

2. Briefly describe the results of previous assessment report(s).

   The standard of success was met only in outcome 3.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   The implemented change was to split the final exam into a midterm and final. The rationale was that it would be less stressful and a shortened exam each time.

II. Assessment Results per Student Learning Outcome

Outcome 1: Explain information presented in mathematical forms (equations, graphs, diagrams, tables, words).

- Assessment Plan
  - Assessment Tool: Departmentally-developed common exam outcome-related questions
  - Assessment Date: Fall 2018
  - Course section(s)/other population: All sections
  - Number students to be assessed: A random sample of more than 50 print and online exams

- How the assessment will be scored: Departmental rubric
- Standard of success to be used for this assessment: At least 70% will score 3 out of 4 or higher
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
294	63

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 244 students who took the midterm. The other 50 students either withdrew, stopped attending or did not take the test. A random number generator was used to identify 25% of the students in each section of the course, and those tests were used in the assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, mixed mode and online.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

When the master syllabus for Winter 2019 was created, an old version of the course was used as the source for the copy. They should have used the fall 18 version of the syllabus that had four student learning outcomes. While this report has five different outcomes, we have used the assessment plan from the Fall 2018 syllabus.

The outcome we assessed for this area reads: **Outcome #1 Perform consumer finance calculations including interest, loans, annuities, stock market**

purchases and mortgage calculations. (Stock market purchases have since been removed from this outcome.)

The student responses to questions 1 - 6 on the midterm exam were scored using a rubric. The scale of the rubric was:

0=No response of value

1 = 25% correct

2 = 50% correct

3 = 75% correct

4 = 100% correct

These scores were recorded, and multiple evaluations including calculation of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For outcome #1, the mean score was 71%. The standard of success states that the mean grade on the assessed questions will be at least 75%. A mean of 71% does not meet the standard. When reviewing the number and percent of scores that were 3 or 4, 83% of the scores achieved this benchmark and this did meet the standard of success. Finally, we calculated the total score of all six questions and found that 51 of 63 students (81%) scored 75% or higher. This meets the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Interest, home loans, annuities were all areas of strength.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Student loans and mortgage payment were weaker areas for students, although students met the standard of success. We will continue to offer reviews and repetition to improve in these areas.

Outcome 2: Represent relevant information into mathematical forms (equations, graphs, diagrams, tables or words).

- Assessment Plan
    - Assessment Tool: Departmentally-developed common exam outcome-related questions
    - Assessment Date: Fall 2018
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of more than 50 print and online exams
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% will score 3 out of 4 or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
294	63

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 244 students who took the midterm. The other 50 students either withdrew, stopped attending or did not take the test. A random number generator was used to identify 25% of the students in each section of the course, and those tests were used in the assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment (face-to-face, mixed mode and online).

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

When the master syllabus for Winter 2019 was created, an old version of the course was used as the source for the copy. They should have used the Fall '18 version of the syllabus that had four student learning outcomes. While this report has five different outcomes, we have used the assessment plan from the Fall 2018 syllabus.

The outcome we assessed for this area reads: **Outcome #2: Calculate operations on Sets and use Venn diagrams to answer questions involving and, or, and not.**

The student responses to questions 7-10 on the midterm exam were scored using a rubric. The scale of the rubric was:

0=No response of value

1 = 25% correct

2 = 50% correct

3 = 75% correct

4 = 100% correct

These scores were recorded, and multiple evaluations were done including the calculations of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

For outcome #2, the mean score was 81%. The standard of success states that the mean grade on the assessed questions will be at least 75%. A mean of 81% meets the standard. When reviewing the number and percent of scores that were 3 or 4, 78% of the scores achieved this benchmark, and this did meet the standard of success. Finally, we calculated the total score of all six questions and found that 46 of 63 students (73%) scored 75% or higher. This meets the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Areas of strength include set operations, like intersection and union.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Weak areas include more complicated set operations and Venn diagrams to solve story problems. Based on our assessment, we need to develop worksheets to offer more repetition in these areas.

Outcome 3: Perform calculations and interpret results.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common exam outcome-related questions
    - Assessment Date: Fall 2018
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of more than 50 print and online exams
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% will score 3 out of 4 or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
294	63

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 244 students who took the midterm. The other 50 students either withdrew, stopped attending or did not take the test. A random number generator was used to identify 25% of the students in each section of the course, and those tests were used in the assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment (face-to-face, mixed mode and online).

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

When the master syllabus for Winter 2019 was created, an old version of the course was used as the source for the copy. They should have used the Fall '18 version of the syllabus that had four student learning outcomes. While this report has five different outcomes, we have used the assessment plan from the Fall 2018 syllabus. The outcome we assessed for this area reads: **Outcome #3 Set up and solve proportions in applied context. Identify, state domain and range, graph and interpret linear, quadratic and exponential functions.** The student responses to questions 1-2 on the final exam were scored using a rubric. The scale of the rubric was: 0=No response of value 1 = 25% correct 2 = 50% correct 3 = 75% correct 4 = 100% correct These scores were recorded and multiple evaluations were done including calculations of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #3, the mean score was 95%. The standard of success states that the mean grade on the assessed questions will be at least 75%. A mean of 95% exceeds the standard. When reviewing the number and percent of scores that were 3 or 4, 94% of the scores achieved this benchmark, and this did meet the standard of success. Finally, we calculated the total score of all six questions and found that 59 of 63 students (94%) scored 75% or higher. This meets the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Areas of strength include interpreting lines, graphing lines and evaluating functions.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Areas of weakness include quadratic equations and exponential functions. Development of worksheets to allow for further repetition is anticipated.

Outcome 4: Make judgements and draw conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common exam outcome-related questions
    - Assessment Date: Fall 2018
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of more than 50 print and online exams
    - How the assessment will be scored: Departmental rubric
    - Standard of success to be used for this assessment: At least 70% will score 3 out of 4 or higher
    - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
294	63

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

There were 244 students who took the midterm. The other 50 students either withdrew, stopped attending or did not take the test. A random number generator was used to identify 25% of the students in each section of the course, and those tests were used in the assessment.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All sections were included in the assessment, face-to-face, mixed mode and online.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

When the master syllabus for Winter 2019 was created, an old version of the course was used as the source for the copy. They should have used the Fall '18 version of the syllabus that had four student learning outcomes. While this report has five different outcomes, we have used the assessment plan from the Fall 2018 syllabus.

The outcome we assessed for this area reads: **Outcome #4 Calculate and interpret statistics including measures of center and spread and predictions based on the normal curve. Calculate probabilities including those using addition and multiplication rules. Solve probability problems.**

The student responses to questions 1-2 on the final exam were scored using a rubric. The scale of the rubric was:

0=No response of value

1 = 25% correct

2 = 50% correct

3 = 75% correct

4 = 100% correct

These scores were recorded and multiple evaluations were done including calculations of the mean, the percent of scores that were 3 or 4, and the percent of students who scored 75% or higher.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
For outcome #4, the mean score was 75%. The standard of success states that the mean grade on the assessed questions will be at least 75%. A mean of 75% meets the standard. When reviewing the number and percent of scores that were 3 or 4, 86% of the scores achieved this benchmark, and this did meet the standard of success. Finally, we calculated to total score of all six questions and found that 55 of 63 students (87%) scored 75% or higher. This also meets the standard of success.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Areas of strength include simple probabilities and measures of center.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Areas of weakness include more complicated probability problems, including conditional probability and predictions based on the normal curve. Development of worksheets to help with repetition in these areas is planned.

Outcome 5: Express quantitative evidence in support of an argument or conclusion.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common exam outcome-related questions

- Assessment Date: Fall 2018
- Course section(s)/other population: All sections
- Number students to be assessed: A random sample of more than 50 print and online exams
- How the assessment will be scored: Departmental rubric
- Standard of success to be used for this assessment: At least 70% will score 3 out of 4 or higher
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2019	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
294	0

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

This outcome was not assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

This outcome was not assessed.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

This outcome was not assessed.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No
This outcome was not assessed.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

This outcome was not assessed.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

This outcome was not assessed.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

Students have performed a lot better since we split the final exam. Initially, we put five questions on each exam. The instructors felt that this was too short, so we've expanded it to ten questions each, which was assessed in this report. This gives the opportunity to delineate which topics need more work. Five questions was not enough to cover all of the material.

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This is an excellent course for students who need a college level Math credit but are not in an area that emphasizes mathematics.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

This report will be shared at a department meeting and through an email group to instructors of the course.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	Revise outcome #3 and #4 to reflect the current teaching of MTH 125.	We replaced these areas with a lot of instruction on functions to align with State of	2019

		Michigan Transfer (MTA) guidelines.	
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	We are adding additional assignments to the course, including in-class assignments to cover each module, worksheets to promote repetition in problem areas. We're updating the homework to the new, enhanced model that doesn't require Flash capability.	These assignments are more reflective of the outcomes of the course.	2019

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

MTH 125 assessment data

Faculty/Preparer:	Laura Perez	**Date:** 08/13/2019
Department Chair:	Lisa Manoukian	**Date:** 08/13/2019
Dean:	Victor Vega	**Date:** 09/27/2019
Assessment Committee Chair:	Shawn Deron	**Date:** 10/18/2019

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	125	MTH 125 02/10/2017-Everyday College Math
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Mathematics	Lisa Rombes
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Perform consumer finance calculations including interest, loans, annuities, stock market purchases and mortgage calculations.

- Assessment Plan
  - Assessment Tool: Departmentally-developed common questions
  - Assessment Date: Winter 2015
  - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
  - Number students to be assessed: 40
  - How the assessment will be scored: answer key
  - Standard of success to be used for this assessment: The mean grade on the assessed questions will be at least 75%.
  - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
304	115

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given.

Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given.

Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I took all the exams turned in over the last year, and asked my pod secretary to make a pile from just Fall 2016. Then I took every other written exam from that pile, for a total of **n=43** exams, in a systematic sample.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No

Outcome	Average Score % Face to Face N=43	Weighted Average score % online* N=72	Weighted Average Score % Overall* Nearest Percent
1	71.51%	35.97%	**49%**
2	91.86%	61.99%	**72%**
3	71.51%	80.54%	**78%**
4	79.65%	44.47%	**58%**

*Weighted average based on number of exams

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Face to face students performed close to the standard. Online scored way below.

One reason is grading: the online are taking an electronic test which cannot be scored according to the rubric: they are right or wrong and cannot get partial credit.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Student should be more accurate.

Outcome 2: Calculate operations on Sets and use Venn Diagrams to answer questions involving and, or, and not.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common questions
    - Assessment Date: Winter 2015
    - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
    - Number students to be assessed: 40
    - How the assessment will be scored: answer key
    - Standard of success to be used for this assessment: The mean grade on the assessed questions will be 75% or higher.
    - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
304	115

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given.

Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

304 students were enrolled in Fall 2016 (See appendix 2). Of course it is impossible to say how many were still attending when the final was given.

Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I took all the exams turned in over the last year, and asked my pod secretary to make a pile from just Fall 2016. Then I took every other written exam from that pile, for a total of **n=43** exams, in a systematic sample.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No

Outcome	Average Score % Face to Face N=43	Weighted Average score % online* N=72	Weighted Average Score % Overall* Nearest Percent
1	71.51%	35.97%	**49%**
2	91.86%	61.99%	**72%**
3	71.51%	80.54%	**78%**
4	79.65%	44.47%	**58%**

*Weighted average based on number of exams

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Face-to-face students performed way above the standard and online students below. One reason is grading: the online are taking an electronic test which cannot be scored according to the rubric: they are right or wrong and cannot get partial credit.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students should prepare for the tests more diligently. Online students should be encouraged to take quizzes without open book, notes, etc.

Outcome 3: Set up and solve proportions in applied context. Solve direct and inverse variation applications. Identify, state domain and range, graph, and interpret linear, quadratic, and exponential functions.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common questions
    - Assessment Date: Winter 2015
    - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
    - Number students to be assessed: 40
    - How the assessment will be scored: answer key
    - Standard of success to be used for this assessment: The mean grade on the assessed questions will be 75% or higher.
    - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
304	115

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given.

Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given.

Face to face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I took all the exams turned in over the last year, and asked my pod secretary to make a pile from just Fall 2016. Then I took every other written exam from that pile, for a total of **n=43** exams, in a systematic sample.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

-

Outcome	Average Score % Face to Face N=43	Weighted Average score % online* N=72	Weighted Average Score % Overall* Nearest Percent
1	71.51%	35.97%	**49%**
2	91.86%	61.99%	**72%**
3	71.51%	80.54%	**78%**
4	79.65%	44.47%	**58%**

*Weighted average based on number of exams

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Both groups scores at or almost at the standard.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

None.

Outcome 4: Calculate and interpret statistics including measures of center and spread and

predictions based on the normal curve. Calculate probabilities including those using addition and multiplication rules. Calculate permutations and combinations and use them to solve probability problems.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common questions
    - Assessment Date: Winter 2015
    - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
    - Number students to be assessed: 40
    - How the assessment will be scored: answer key
    - Standard of success to be used for this assessment: The mean grade on assessed questions will be 75% or higher.
    - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2016		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
304	115

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given. Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

304 students were enrolled in Fall 2016 (See appendix 2). Of course, it is impossible to say how many were still attending when the final was given.

Face-to-face: One out of every two exams turned in by instructors was included in the assessment. Forty-three exams were examined.

Online: Aggregate (class average) data from Connect Math online final was used for all sections. Seventy-two exams used.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

I took all the exams turned in over the last year, and asked my pod secretary to make a pile from just Fall 2016. Then I took every other written exam from that pile, for a total of **n=43** exams, in a systematic sample.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No

- o

Outcome	Average Score % Face to Face N=43	Weighted Average score % online* N=72	Weighted Average Score % Overall* Nearest Percent
1	71.51%	35.97%	**49%**
2	91.86%	61.99%	**72%**
3	71.51%	80.54%	**78%**
4	79.65%	44.47%	**58%**

*Weighted average based on number of exams

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Face-to-face: above standard; online below.

One reason is grading: the online are taking an electronic test which cannot be scored according to the rubric: they are right or wrong and cannot get partial credit.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Students should be encouraged to prepare better.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

First, some things to keep in mind about Math 125 in general

- Many students are transferring the credit to EMU and only need a “C” to do so. Therefore, they do not view the final exam with seriousness in my

experience if they have enough points to pass. This may explain the high number of zeros in the raw data: the problem was not even ATTEMPTED. This shows a lack of motivation from the student side making the assessment, perhaps, skewed low.

- The class is designed for students for whom math is not a career aspiration or necessity (as they see it.)
- The class is terminal: therefore, unlike, say Math 180 Precalculus, the students do not see mastering the material as having an impact on them in the near future.
- Many face-to-face instructors do not make everyone take the final (this should change in the future to make alignment online vs. face to face.) That means the strongest students may not be in this sample because they had an "A from points" going into the final.

Second, some things to keep in mind online 125 vs. face to face 125:

- Online exams being proctored is the ONLY instance in the semester when they do not have full access to the book, their notes, and outside references. This is simply a function of online: no matter what we say, they can use other outside resources during the 14 module quizzes. This perhaps gives them an overly confident view of their own skills.
- Online exams are stressful when the first proctored experience is at the final. See changes we are making below to mitigate this.
- We set a 40% threshold on the final for passing the class. This is intended to give students more motivation to do their own work, and do it for learning, throughout the term. This is a number agreed upon by the Math department.

Now for the meat of the assessment.

- Online students scored significantly lower on three out of four outcomes, with ratio and proportion being the exception.
- The most difficult outcome by average was the question on probability.
- The best outcome for students was ratio and proportion.
- The finance and statistics/probability questions were multipart, in fact the finance one had 9 entries in an amortization table that had to be calculated.

- The face-to-face classes had all four out comes above, or close, to the mastery percent indicated in the assessment instrument.
- Online students do worse overall. What does that mean?
    - Do online students have lower GPAs? Lower motivation? Lower skill mastery due to outside resources? Unknown to this educator, but certainly a topic of further investigation by the College.
    - Do online students truly learn the material at a lower rate?
    - Are we providing necessary materials for them to master the material?
    - WCC is committed to online instruction. Do these results argue against that?
    - How do we drive home that students need to master the material?

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

At mentor meetings.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
1st Day Handout	Split final into midterm and final.	Less stress; shorter assessment; easier to prepare. Not "high stakes".	2017
Course Assignments	Split final into midterm and final.	Less stress, easier prep, shorter test.	2017

4. Is there anything that you would like to mention that was not already captured?

Thanks for the opportunity. As a college, we need to be aware that online students can be dishonest in daily work and use resources. The college needs to support proctoring and other methods as needed to verify students are doing the work.

III. Attached Files

Long form with appendices

Faculty/Preparer: Lisa Rombes **Date:** 02/10/2017

Department Chair: Lisa Rombes **Date:** 02/10/2017
Dean: Kristin Good **Date:** 02/13/2017
Assessment Committee Chair: Ruth Walsh **Date:** 03/07/2017

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	125	MTH 125 04/06/2015-Everyday College Math
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Mathematics	Lisa Rombes
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Perform consumer finance calculations including interest, loans, annuities, stock market purchases and mortgage calculations.

- Assessment Plan
  - Assessment Tool: Departmentally-developed common questions
  - Assessment Date: Winter 2015
  - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
  - Number students to be assessed: 40
  - How the assessment will be scored: answer key
  - Standard of success to be used for this assessment: The mean grade on the assessed questions will be at least 75%.
  - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2014		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
553	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

I took every tenth test to obtain a random sample of the size specified in the assessment plan.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

37 randomly selected face-to-face students' tests were selected. Four randomly selected online students were selected.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Question on compound interest. 12 points total; students answered amount, interest, and explained the difference in results for two different compounding periods. 1. Find using the compound interest formula. 3 pts each. 1. ___10075.28_____Find the amount in an account that had $10,000 deposited, and earned 0.15% interest, compounded <u>monthly</u>, for 5 years. Show work. (Notice that this is not 15% interest.) 2. ___75.28_____How much of the above amount is *interest earned*? 3. ____48677.07_____Find the amount in an account that had $45,500 deposited, with the same terms above, for 45 years. 4. In general, in two accounts with the same interest rate, and same amount deposited, will the number of compounding periods per year matter to the interest earned? Yes, no, and explain *in your own words*; showing your

understanding of compound interest. Do not use only equations as your reasoning.

Answers will vary

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

The sample mean score on this question was 9.23.

The percent that corresponds to 9.28 out of 12 points is 78.829%.

A 95% confidence interval for the population mean is (8.3419, 10.145) which means we are 95% certain that the actual mean is in that range. There is no significant evidence that the mean is lower than 75%.

The sample shows that the students met the standard set in the assessment for this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students are able to complete calculations AND analyze the math behind them. We asked whether more compounding periods would provide more interest, and they were successful at this analysis.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Frankly every student, since they are adults and in the workplace, should be able to attain this standard. As more students hopefully come from Math 094 Pathways to Math Literacy, their prep and understanding will both be deeper.

Outcome 2: Calculate operations on Sets and use Venn Diagrams to answer questions involving and, or, and not.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common questions
    - Assessment Date: Winter 2015
    - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
    - Number students to be assessed: 40
    - How the assessment will be scored: answer key
    - Standard of success to be used for this assessment: The mean grade on the assessed questions will be 75% or higher.
    - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2014		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
553	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

See previous outcome.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

See previous outcome.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

1. Use the following sets to complete the operations. U = Universal set = {The 50 States}

V = {Virginia}

A = {Alabama, Alaska, Arizona, Arkansas}

C = {States in the 48 contiguous U.S States}

Find the following ***sets***. 2 points each.

2. _____{Virginia}_____
3. _____{AL,AK,AZ,AR,VA}_____
4. _____{ }_____
5. _{States not beginning with A}_____ a description is fine here
6. _____{Hawaii}_____
7. __2___ (notice you do not have to write out this set, just tell how many items it has)

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No
The sample mean score was 68.243% Since this is close to the goal, I performed a hypothesis test of mu = .75 vs mu < .75 at the significance level of 5%. The p-value for this test, 0.0327, indicates that there is sufficient evidence to say that students did not meet the standard of 75% on this question.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

This is a tough topic for students. They get intersection and union confused. There is not much good news here, but 68% did master the topic, certainly not a disaster.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Sets and Venn diagrams do cause students to THINK and do MULTI-STEP procedures. I am going to make additional videos for the Blackboard site for this class. I am also going to encourage instructors to continue to use these problems as warm-ups. This topic suffers from the "smorgasbord" nature of the entire class: since we have now 4 separate units, and this is in the second, by the final exam time students have perhaps forgotten. However, quiz data also suggests that the students have trouble here.

Outcome 3: Set up and solve proportions in applied context. Solve direct and inverse variation applications. Identify, state domain and range, graph, and interpret linear, quadratic, and exponential functions.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common questions
    - Assessment Date: Winter 2015
    - Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
    - Number students to be assessed: 40
    - How the assessment will be scored: answer key
    - Standard of success to be used for this assessment: The mean grade on the assessed questions will be 75% or higher.
    - Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
	0

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

This is the new outcome for Winter 2015. My assessment data is for Fall 2014, so this could not be assessed.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

NA

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

NA

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: No
NA

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Please do not reject this report since my assessment data (final exam) was from last semester when we had not started covering this module yet.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Please do not reject this report since my assessment data (final exam) was from last semester when we had not started covering this module yet.

Outcome 4: Calculate and interpret statistics including measures of center and spread and predictions based on the normal curve. Calculate probabilities including those using addition and multiplication rules. Calculate permutations and combinations and use them to solve probability problems.

- Assessment Plan
    - Assessment Tool: Departmentally-developed common questions
    - Assessment Date: Winter 2015

- Course section(s)/other population: 40 students from at least three sections representing three instructors, randomly selected using a random number generator
- Number students to be assessed: 40
- How the assessment will be scored: answer key
- Standard of success to be used for this assessment: The mean grade on assessed questions will be 75% or higher.
- Who will score and analyze the data: department faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2014		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
553	41

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

See first outcome.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

See first outcome.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

1. Use the concept of percentiles to answer. 3 points each. In a ranked (by height) group of 800 nurses: 2. ____480_____How many are shorter than the 60th percentile? 3. _____752_____How many are shorter than the 94th percentile? 4. _____640_____What is the rank from the TOP of the person at the 20th percentile?

5. _____10%_____What <u>percent</u> of the group taller than the 90th percentile?

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: <u>No</u>
The mean score was 72.973%. However, neither the confidence interval nor the t-test contradict the fact that the actual population mean is 75% p=0.23 CI=(8.4961,10.324) out of 13 = (65%, 79.4%)

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students do just fine on center and spread. This particular question was on percentiles. They have ALMOST met the standard here: 73% mastered this topic.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Percentiles are something that are used in medical and common-application statistics. Your child may be at the 5th percentile for height. The focus should be on these real-world applications. Also, a physical demonstration of percentiles could be encouraged in the classroom: Arrange the students by height and figure percentiles "live" and in human perspective.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

There were no surprises, and no disasters. The course is taught "buffet style" where early topics are not applied and reviewed until the final. That makes it a fun and engaging class, but one where assessment at the end may suffer. I firmly believe that this class is a "perfect bowl of porridge": not too hot, not too cold. Students who fail generally do so because they do not attend and/or do not

complete work: I have a very rare student who cannot understand the accessible material presented.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I will disseminate to all part- and full-time faculty by email.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Course Assignments	Provide students with real-world applications of percentiles. Consider a physical demonstration of percentiles.	Students were close to mastering the topic of percentiles. Additional instruction and real-world applications may help solidify their understanding.	2015
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	Add Blackboard videos to provide addition instruction in Sets and Venn diagrams.	Sets and Venn diagrams require multistep procedures. Students need additional explanation and practice.	2015

4. Is there anything that you would like to mention that was not already captured?

Again, this assessment was done on 3 out of 4 of the NEW Winter 2015 modules since I did not have data on the 4th. Please do not reject it for this reason: I do not want to start from scratch again. Last time I submitted, I did only one outcome since that was previously acceptable; so this is my second attempt in a year.

III. Attached Files

Fall 2014 Final Assessment Data

Faculty/Preparer:	Lisa Rombes	**Date:** 04/27/2015
Department Chair:	Lisa Rombes	**Date:** 04/28/2015
Dean:	Kristin Good	**Date:** 04/29/2015
Assessment Committee Chair:	Michelle Garey	**Date:** 06/15/2015

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed:Everyday College Math
   Course Discipline Code and Number: Math 125
   Course Title: Math 125
   Division/Department Codes: Math 125

2. Semester assessment was conducted (check one):
   - ☒ Fall 20_11_
   - ☐ Winter 20__
   - ☐ Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.
   - ☐ Portfolio
   - ☐ Standardized test
   - ☐ Other external certification/licensure exam (specify):
   - ☐ Survey
   - ☐ Prompt
   - ☒ Departmental exam
   - ☐ Capstone experience (specify):
   - ☐ Other (specify):

4. Have these tools been used before?
   - ☒ Yes
   - ☐ No

   If yes, have the tools been altered since its last administration? If so, briefly describe changes made.

We altered the department exam by adding assessment of specific skills from the outcomes of the course, in addition to a new un-covered topic. This should give more information about the three topical parts of the class (finance, logic, statistics) and improvements needed.

5. Indicate the number of students assessed and the total number of students enrolled in the course.

50 student exams were assessed out of 387 total students ENROLLED in the course, and about 160 exams turned in.

6. If all students were not assessed, describe how students were selected for the assessment. *(Include your sampling method and rationale.)*

Sampling method: As instructors turned in their finals, including myself, I selected without regard to grade or name every FOURTH exam in each pile. I printed about half of the exams turned in online. This resulted in 40 exams. Then I performed the 'every 4th' maneuver again and got 10 more. This gave a wide representation of all instructors.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.

The recent changes in the course were as a result of the change in the class to 4 credit hours; no specific changes were made in response to the last assessment.

2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus. *(You can copy and paste these from CurricUNET's WR report.)*

Correctly perform Consumer Finance Math calculations including interest, loans, annuities, stock market purchases and mortgage calculations.

Correctly calculate operations on Sets and Venn Diagrams, determine validity of syllogisms, clock arithmetic, mathematical systems, groups and abelian groups.

Demonstrate the ability to read and interpret previously untaught mathematical material and perform and interpret calculations based on the instructions and procedures they read.

3. For each outcome that was assessed, indicate the standard of success exactly as it is stated on the course master syllabus. *(You can copy and paste these from CurricUNET's WR report.)*

Standard of success to be used for this assessment: the mean grade on the assessed questions will be 75% or higher. (FOR ALL OUTCOMES)

4. Briefly describe assessment results based on data collected during the course assessment. Indicate the extent to which students are achieving each of the learning outcomes listed above and state whether the standard of success was met for each outcome. ***In a separate document, include a summary of the data collected and any rubrics or scoring guides used for the assessment.***

The results of the first outcome (finance) indicate a mean score of 2.8 out of 4. This was a question on compound interest. Notably, many students received a 0 out of 4 because they approached the problem as simple not compound interest. Notice that (see attached document) ~~that~~ 34 out of 50 or 68% of students received a 4 out of 4. Using a mean in this case is not especially helpful.

On the Sets outcome, students scored a mean of 3.4=85% This is well above the 75% required in the standard.

On the "previously untaught material", this time a calculation of Weight Watchers points from 2 food labels, students also met the standard with a mean of 3.1 = 77.5%.

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in the assessment results. *(This should be an interpretation of the assessment results described above and a thoughtful analysis of student performance.)*

   Strengths: It was heartening that the students did so well. It is apparent that even the challenging topics of intersection and union of sets was mastered. Also, the performance on the "previously untaught" shows that Math 125 is fulfilling its mission as a "terminal" class that helps students see math as a tool. This is what we wish for degree-earning students.

   Weaknesses: the weakness on the compound interest question (as interpreted by mean) was a wording issue. Perhaps the author(s) of the exam should pay careful attention to question wording (although the word "compounded" was in the question, the students seem to have sometimes missed this.

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses. *(If students met all expectations, describe your plan for continuous improvement.)*

Students should be able to read a question and understand the calculation required. We will continue to make sure questions are worded clearly, and have students practice identifying the correct formula to use in the circumstance.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.
   a. ☐ Outcomes/Assessments on the Master Syllabus
      Change/rationale:

b. ☐ Objectives/Evaluation on the Master Syllabus
Change/rationale:

c. ☐ Course pre-requisites on the Master Syllabus
Change/rationale:

d. ☐ 1st Day Handouts
Change/rationale:

e. ☒ Course assignments
Change/rationale: Make sure MIXED practice on finance topics is given. Implement unit-wide assignment on formulas.

f. ☐ Course materials (check all that apply)
- ☐ Textbook
- ☐ Handouts
- ☐ Other:

g. ☐ Instructional methods
Change/rationale:

h. ☐ Individual lessons & activities
Change/rationale:

3. What is the timeline for implementing these actions? Winter 2012.

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.

Very effective, However, the questions were all at the "calculation" level. In the future, we will be sure to assess at an "interpretation" level at least one of the outcomes.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.
See above.

3. Which outcomes from the master syllabus have been addressed in this report?
All _____ Selected __x___
If "All", provide the report date for the next full review: _____.

If "Selected", provide the report date for remaining outcomes: ____Fall 2013 or sooner_____.

Submitted by:

Print: Lisa Rombes (Faculty/Preparer) **Signature** Lisa Rombes **Date:** 1-4-12

Print: Kristin Chatas (Department Chair) **Signature** [signature] **Date:** 1-4-12

Print: Martha Showalter (Dean/Administrator) **Signature** [signature] **Date:** 1-5-12