Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	168	MTH 168 07/11/2025-Intermediate Algebra with Foundations
College	Division	Department
Math, Science and Engineering Tech	Math, Science and Engineering	Math & Engineering Studies
Faculty Preparer		Robert Hatcher
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?

   No

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

   3.

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

   5.

II. Assessment Results per Student Learning Outcome

Outcome 1: Represent and solve linear equations analytically and verbally.

- Assessment Plan

- Assessment Tool: Outcome-related questions on a common departmental final exam.
- Assessment Date: Winter 2025
- Course section(s)/other population: All sections
- Number students to be assessed: A random sample of approximately 30% of the students taking the course during the semester assessed.
- How the assessment will be scored: Each question will be scored on a scale from 0 to 4 with a rubric developed by the course mentor.
- Standard of success to be used for this assessment: 75% of all students assessed will score 75% or higher on all outcome-related common exam questions.
- Who will score and analyze the data: The course mentor for MTH 168

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
90	60

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.

As the assessment tool was a common departmental final exam, students who did not take the final exam were not included in the assessment. **30 students. A third of the students enrolled in the course did not take the final exam.**

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.

As this was the first semester the course was offered, it was decided to assess all 60 students who took the departmental final exam. This includes students from all four sections offered in Winter 2025.

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

Question numbers 1 and 2 on the departmental final exam were used to assess this outcome. Each question was regraded using a scale of 0 to 4. The number of responses that score 3 or better on these questions divided by the number of total attempts at each question was used to determine the percentage of successful attempts.

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 percentage of successful attempts on questions #1 and 2 on the departmental final exam was 85% demonstrating that students as a whole successfully achieved the standard of success for this learning outcome. Note: Many students who took the assessment, (34 students, or 56.7%) had previously taken a math course at WCC. It will be interesting to monitor how student success on this outcome changes as students no longer have the opportunity to review the related course objectives in courses no longer offered at the college (MTH 067, 094, and 097).

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

Students demonstrated an understanding of solving and interpreting linear equations in one variable. Basic algebraic symbol manipulation, properties of equality, finding and checking solutions were all skills the student demonstrated with success on 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.

Minor improvements on mastering specific skills (distributive property and checking solutions) should be pursued. Our hope is that modifying the style of the homework by categorizing assignments into two groups: Skill Mastery versus Concept Mastery will help students practice in a more efficient manner and lead to deeper understanding.

Outcome 2: Solve systems of two linear equations in two variables graphically and analytically.

- Assessment Plan
    - Assessment Tool: Outcome-related questions on a common departmental final exam.
    - Assessment Date: Winter 2025
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of approximately 30% of the students taking the course during the semester assessed.
    - How the assessment will be scored: Each question will be scored on a scale from 0 to 4 with a rubric developed by the course mentor.
    - Standard of success to be used for this assessment: 75% of all students assessed will score 75% or higher on all outcome-related common exam questions.
    - Who will score and analyze the data: The course mentor for MTH 168

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
90	60

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.

As the assessment tool was a common departmental final exam, students who did not take the final exam were not included in the assessment. **Thirty students, a third of the students enrolled in the course, did not take the final exam.**

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.

As this was the first semester the course was offered, it was decided to assess all 60 students who took the departmental final exam. This includes students from all four sections offered in Winter 2025.

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

Question number 8 on the departmental final exam was used to assess this outcome. Each question was regraded using a scale of 0 to 4. The number of responses that score 3 or better on these questions divided by the number of total attempts at each question was used to determine the percentage of successful attempts.

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 percentage of successful attempts on question #8 on the departmental final exam was 75% demonstrating that students as a whole successfully achieved the standard of success for this learning outcome.

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

Students barely met the threshold of 75% correct responses to the questions related to this outcome. It helps that students seem to have a strong performance in the first learning outcome, which provides an essential base for them to apply concepts on solving one linear equation with one unknown to the more complex task of solving two linear equations with two unknowns.

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.

Solving systems of equations with two variables can be a difficult, abstract concept for beginning algebra students. This course moves very quickly and the pace may not allow students to develop a deep understanding of this type of problem or its applications.

Future instructors of the course will be made aware of the struggles students run into with this type of question. All of this information will be provided on a MTH 168 Faculty Support website provided by the course mentor.

Outcome 3: Graph and transform graphs of linear, quadratic, rational, radical, exponential, and logarithmic functions.

- Assessment Plan
  - Assessment Tool: Outcome-related questions on a common departmental final exam.
  - Assessment Date: Winter 2025
  - Course section(s)/other population: All sections
  - Number students to be assessed: A random sample of approximately 30% of the students taking the course during the semester assessed.
  - How the assessment will be scored: Each question will be scored on a scale from 0 to 4 with a rubric developed by the course mentor.
  - Standard of success to be used for this assessment: 75% of all students assessed will score 75% or higher on all outcome-related common exam questions.

- Who will score and analyze the data: The course mentor for MTH 168

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
90	60

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.

As the assessment tool was a common departmental final exam, students who did not take the final exam were not included in the assessment. **Thirty students, a third of the students enrolled in the course, did not take the final exam.**

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.

As this was the first semester the course was offered, it was decided to assess all 60 students who took the departmental final exam. This includes students from all four sections offered in Winter 2025.

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

Question numbers 3, 4, 12, and 17 on the departmental final exam were used to assess this outcome. Each question was regraded using a scale of 0 to 4. The number of responses that score 3 or better on these questions divided by the number of total attempts at each question was used to determine the percentage of successful attempts.

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 percentage of successful attempts on questions #3, 4, 12, and 17 on the departmental final exam was 50.7% demonstrating that students as a whole did not achieve the standard of success for this learning outcome.

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

Students did not do well on this outcome, however, the strong base they have with Learning Outcome #1 and Solving Linear Equations, definitely helps provide a base for mastering these types of problems.

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.

As the concepts in the course become more abstract and involve more steps, student performance seems to drop off. This may be due to the fact that the faculty had no choice but to include two semesters of algebra in one semester. Students may not have time to fully process and master complex concepts. Again, these issues will be shared by faculty teaching the course and we will brainstorm strategies to help improve student understanding.

Outcome 4: Simplify expressions and solve problems involving functions and equations using algebraic concepts.

- Assessment Plan
    - Assessment Tool: Outcome-related questions on a common departmental final exam.
    - Assessment Date: Winter 2025

- Course section(s)/other population: All sections
- Number students to be assessed: A random sample of approximately 30% of the students taking the course during the semester assessed.
- How the assessment will be scored: Each question will be scored on a scale from 0 to 4 with a rubric developed by the course mentor.
- Standard of success to be used for this assessment: 75% of all students assessed will score 75% or higher on all outcome-related common exam questions.
- Who will score and analyze the data: The course mentor for MTH 168

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
90	60

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.

As the assessment tool was a common departmental final exam, students who did not take the final exam were not included in the assessment. **Thirty students, a third of the students enrolled in the course, did not take the final exam.**

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.

As this was the first semester the course was offered, it was decided to assess all 60 students who took the departmental final exam. This includes students from all four sections offered in Winter 2025.

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

Question numbers 5, 9, 10, 11 and 13 on the departmental final exam were used to assess this outcome. Each question was regraded using a scale of 0 to 4. The number of responses that score 3 or better on these questions divided by the number of total attempts at each question was used to determine the percentage of successful attempts.

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 percentage of successful attempts on questions #5, 9, 10, 11 and 13 on the departmental final exam was 42.7% demonstrating that students as a whole did not achieve the standard of success for this learning outcome.

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

There is nothing positive to say regarding students' performance on this outcome. Learning the basics operations and rational expressions, finding equations of lines, and simplifying radicals need a lot of extra attention.

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.

Given the pace at which topics are covered in this course, there is very little room to spend more time or attention on these topics. In the future, we will consider removing some of the real-life applications in the curriculum to provide more time for the basic skills. Hopefully this change will not have a negative effect on success in subsequent courses for which MTH 168 is a prerequisite.

Outcome 5: Identify the mapping between two sets of numbers as a function or relation and use the concept of functions to classify and analyze different types of functions.

- Assessment Plan
    - Assessment Tool: Outcome-related questions on a common departmental final exam.
    - Assessment Date: Winter 2025
    - Course section(s)/other population: All sections
    - Number students to be assessed: A random sample of approximately 30% of the students taking the course during the semester assessed.
    - How the assessment will be scored: Each question will be scored on a scale from 0 to 4 with a rubric developed by the course mentor.
    - Standard of success to be used for this assessment: 75% of all students assessed will score 75% or higher on all outcome-related common exam questions.
    - Who will score and analyze the data: The course mentor for MTH 168

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
90	60

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.

As the assessment tool was a common departmental final exam, students who did not take the final exam were not included in the assessment. **Thirty students, a third of the students enrolled in the course, did not take the final exam.**

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.

As this was the first semester the course was offered, it was decided to assess all 60 students who took the departmental final exam. This includes students from all four sections offered in Winter 2025.

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

Question numbers 6, 7, 13, 14, 15, 16, 18, and 19 on the departmental final exam were used to assess this outcome. Each question was regraded using a scale of 0 to 4. The number of responses that score 3 or better on these questions divided by the number of total attempts at each question was used to determine the percentage of successful attempts.

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 percentage of successful attempts on questions #6, 7, 13, 14, 15, 16, 18, and 19 on the departmental final exam was 61.1% demonstrating that students as a whole did not achieve the standard of success for this learning outcome.

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

Students did quite well identifying the graph of a relation is a function, but this was the only success in all of the questions on the exam related to this learning 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.

Given the pace at which topics are covered in this course, there is very little room to spend more time or attention on these topics. In the future, we will consider removing some of the real-life applications in the curriculum to provide

more time for the basic skills. Hopefully this change will not have a negative effect on success in subsequent courses for which MTH 168 is a prerequisite.

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.

N/A

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?

Implementation of NP Grade:

Of the 78 students who were registered for the course at the end of the semester, 10 students received an NP grade in the course. The NP grade was introduced midway through the semester, and was given to students who mastered enough of the course material to raise their math level from 2 to 3, but not enough to raise their math level to 4. As a result, many of the students who earned an NP grade did not take the final exam and were not included in the assessment report.

There is no way to tell if the course met the needs of students who received an NP grade. Many students only need to raise their math level to 3 to meet their academic goals. However, some need to continue to math level 4. There is currently no mechanism to discern if the students who received an NP grade had achieved

With future tracking of the students who passed this course performed in their subsequent courses for which MTH 168 is a prerequisite, we will be better equipped to determine if the course has met their goals.

One future change will be to create a departmental midterm exam which covers the material necessary for students to earn an NP grade, raising their math level to from 2 to 3. This will provide data to assess the students who earn an NP grade.

Success on Learning Outcomes correlated to Course Grade

To correctly assess the role of the course is to ensure that students' grades in the course are correlated to their understanding of the learning outcomes. Students who do not demonstrate understanding of the Learning Outcomes, should not earn a passing grade in the course, while students who do understand the learning outcomes should receive a grade reflecting their level of understanding.

MTH 168 students' performance on each individual Learning Outcome was calculated by grading their responses on the common final exam. Then, the average of their scores for the five learning outcomes was averaged. Their average on the learning outcomes was compared to their grade in the course. Some interesting results were found:

Out of the 60 who took the final exam:

- 10 students (16.7%) scored less than a 70% average on the Learning Outcomes, but received a C or better in the course.
- 28 students (46.7%) received a course grade a full grade higher than their average on the Learning Outcomes.
- None of the students received a course grade that was a full grade lower than their average on the Learning Outcomes.

It seems that students may be earning higher grades in the course than is reflected in their mastery of the learning outcomes.

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

This information will be shared with the math department in our Fall 2025 department meeting as well as all of the instructors teaching the course in future semesters via a MTH 168 Faculty Support website maintained by the course mentor.

https://sites.google.com/d/1e5Y3mwm9Ve1rNDnJVrlbwupG5tXeothD/p/1OUUVXc88TTqf_RJBDRNzYaoxwOQFU1Ap/edit

4.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Outcome Language	**Learning Outcome Organization** Explore improving organization of the learning outcomes and course objectives.	To more clearly separate the various skills and concepts in the curriculum. These changes will be reflected in future master syllabus revisions.	2025
Assessment Tool	**Assessment of Students with NP Grade** Create a departmental midterm exam for students earning the NP grade. This exam will cover only the math level 2 material and will need to be passed with a 75% or better for students to earn the NP. Questions from this exam will be used to assess their understanding of the learning outcomes.	To better assess all of the students who take the course.	2025
Other: Learning Outcomes align to Course Grade	**Success on Learning Outcomes correlated to Course Grade**	Based on analysis in the current assessment, it seems that students may be earning higher grades in the course	2025

	Initiate discussions with all of the instructors who teach MTH 168 in an attempt to address possible ways grade inflation may be avoided.	than is reflected in their mastery of the learning outcomes.	
Assessment Data	Data will be organized by student instead of by question for future assessment reports	Alignment with C&A standards.	2026

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

6.

III. Attached Files

MTH 168 Assessment Data

Faculty/Preparer:	Robert Hatcher	**Date:** 08/17/2025
Department Chair:	Nichole Klemmer	**Date:** 08/18/2025
Dean:	Tracy Schwab	**Date:** 08/19/2025
Assessment Committee Chair:	Jessica Hale	**Date:** 03/17/2026