Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Mathematics	160X	MTH 160X 06/13/2025-Basic Statistics
College	Division	Department
Math, Science and Engineering Tech	Math, Science and Engineering Tech	Math & Engineering Studies
Faculty Preparer		Robert Klemmer
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

Math 160 has been assessed routinely every two years, but this is the first time that Math 160X is being assessed. Math 160X is designed for level 1 or level 2 students who would have previously taken developmental math classes prior to enrolling in Math 160, and the course is designed to provide extra support for students who often struggle with math.

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

In previous assessments of Math 160, we had been observing a trend in higher success rates for each major learning outcome. Given the added supports in the 160X classes, we have been hopeful for similar results for this new course.

	Percentage of Students Achieving at least 70%			
	Course Outcome 1	Course Outcome 2	Course Outcome 3	Course Outcome 4
Winter 2017	87%	86%	62%	86%
Winter 2019	90%	88%	78%	84%
Winter 2021	94%	91%	82%	72%

Winter 2023	97%	86%	86%	84%

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

Upon conclusion of the last assessment report for Math 160, we moved all instructors into the ALEKS platform (from Connect Math) while putting an emphasis on student-instructor engagement/connection. The importance of student-instructor connection is even greater now as we embark on supporting students in Math 160X.

II. Assessment Results per Student Learning Outcome

Outcome 1: Identify common statistical terminology, and represent qualitative and quantitative data in tables and graphs.

- Assessment Plan
    - Assessment Tool: Outcome-related common final exam questions
    - Assessment Date: Spring/Summer 2025
    - Course section(s)/other population: All
    - Number students to be assessed: 10-20% representative random sample of students from all sections of the course
    - How the assessment will be scored: The selected set of common questions for this outcome from the paper departmental final exam will be scored with a rubric
    - Standard of success to be used for this assessment: 75% of students will score at least 70% on the selected set of questions assessed for this outcome
    - Who will score and analyze the data: Course mentor (coordinator)/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)
	2025	

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

# of students enrolled	# of students assessed
	88

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.

All students who completed a final exam for this class in Winter 2025 were assessed (Winter 2025 not available to select in CurricUNET). If the number of finals (88) differs from the total enrollment, either students did not take the final or they may have withdrawn prior to the final exam date.

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 160X students who took the final exam were assessed as part of this report. Note that 160X is only taught in full-term face-to-face sections.

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

A common, proctored final exam for Math 160X was used to assess all outcomes. 89 students took the final exam in the Winter 2025 semester, although an instructor misplaced one exam...resulting in an evaluation of 88 160X students total. I regraded all questions on all exams, regrading for consistency. Outcome 1 included questions 1-4 and 26 from the paper final exam. Each question from the paper final was given a total score between 0 and 1, with partial credit awarded as appropriate. Upon regrading all exams for this learning outcome, I found the total number of points earned for each student (up to a maximum of 5), and finally determined how many students earned a 3.5 or above out of the 5 possible points (since 3.5 out of 5 reflects our desired achievement threshold of 70%).

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
84 out of 88 students (95%) achieved at least 70% on the learning outcome, and the mean score for this outcome was found to be 91%. This reveals a high level of proficiency with the learning outcome as well as a high level of consistency with face-to-face results from previous Math 160 assessments:

	Course Outcome 1
Winter 2017	87%
Winter 2019	90%
Winter 2021	94%
Winter 2023	97%
Winter 2025	95%*

*Winter 2025 results are 160X, whereas previous results are regular 160.

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

160X students demonstrated an outstanding ability to communicate and comprehend statistical terminology and represent qualitative and quantitative data graphically.

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.

Despite the high scores, students can still improve their own communication of statistical terminology. The Math 160 team will consider adding additional content/terminology to the course for this particular learning outcome.

Outcome 2: Interpret, plan, produce and apply descriptive statistics, including common quantitative measures for univariate data and common quantitative measures related to linear regression analysis of bivariate data.

- Assessment Plan
    - Assessment Tool: Outcome-related common final exam questions
    - Assessment Date: Spring/Summer 2025
    - Course section(s)/other population: All
    - Number students to be assessed: 10-20% representative random sample of students from all sections of the course

- How the assessment will be scored: The selected set of common questions for this outcome from the paper departmental final exam will be scored with a rubric
- Standard of success to be used for this assessment: 75% of students will score at least 70% on the selected set of questions assessed for this outcome
- Who will score and analyze the data: Course mentor (coordinator)/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)
	2025	

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

# of students enrolled	# of students assessed
	88

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.

All students who completed a final exam for this class in Winter 2025 were assessed (Winter 2025 not available to select in CurricUNET). If the number of finals (88) differs from the total enrollment, either students did not take the final or they may have withdrawn prior to the final exam date.

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 160X students who took the final exam were assessed as part of this report. Note that 160X is only taught in full-term face-to-face sections.

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

A common, proctored final exam for Math 160X was used to assess all outcomes. 89 students took the final exam in the Winter 2025 semester, although an instructor misplaced one exam...resulting in an evaluation of 88 160X students total. I regraded all questions on all exams, regrading for consistency. Outcome 2 included questions 5-7, 8-9, 10-12, 13-16, and 17-19 from the paper final exam. Each question block from the paper final was given a total score between 0 and 1, with partial credit awarded as appropriate. Upon regrading all exams for this

learning outcome, I found the total number of points earned for each student (up to a maximum of 5), and finally determined how many students earned a 3.5 or above out of the 5 possible points (since 3.5 out of 5 reflects our desired achievement threshold of 70%).

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

69 out of 88 students (78%) achieved at least 70% on the learning outcome, and the mean score for this outcome was found to be 81%. This reveals a satisfactory level of proficiency with the learning outcome as well as a fair level of consistency with face-to-face results from previous Math 160 assessments. It is worth noting that the 78% of students achieving at least 70% surpasses our goal of having at least 75% of students achieving at least 70%, but the 78% also is somewhat lower than results from regular Math 160 success rates on this objective in recent assessments.

	Course Outcome 2
Winter 2017	86%
Winter 2019	88%
Winter 2021	91%
Winter 2023	86%
Winter 2025	78%

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

160X students effectively used statistical tools to calculate descriptive statistics, and the mean of 81% for all students across this learning outcome speaks to the effective strategies that instructors are using to support these students.

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.

While the overall scores for this learning outcome are satisfactory, this is the one learning outcome that is noticeably lower than the results from the face-to-face regular 160 classes from two years ago. One area within this learning outcome in which students struggled most is with constructing and interpreting linear regression problems. Many 160X students previously gained an introduction to this type of algebraic content in Math 097, so we will now consider expanding our content and coverage of the concept in future 160X courses.

Outcome 3: Interpret and apply probability, discrete probability distributions and common continuous probability distributions.

- Assessment Plan
    - Assessment Tool: Outcome-related common final exam questions
    - Assessment Date: Spring/Summer 2025
    - Course section(s)/other population: All
    - Number students to be assessed: 10-20% representative random sample of students from all sections of the course
    - How the assessment will be scored: The selected set of common questions for this outcome from the paper departmental final exam will be scored with a rubric
    - Standard of success to be used for this assessment: 75% of students will score at least 70% on the selected set of questions assessed for this outcome
    - Who will score and analyze the data: Course mentor (coordinator)/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)
	2025	

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

# of students enrolled	# of students assessed
	88

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.

All students who completed a final exam for this class in Winter 2025 were assessed (Winter 2025 not available to select in CurricUNET). If the number of finals (88) differs from the total enrollment, either students did not take the final or they may have withdrawn prior to the final exam date.

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 160X students who took the final exam were assessed as part of this report. Note that 160X is only taught in full-term face-to-face sections.

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

A common, proctored final exam for Math 160X was used to assess all outcomes. 89 students took the final exam in the Winter 2025 semester, although an instructor misplaced one exam...resulting in an evaluation of 88 160X students total. I regraded all questions on all exams, regrading for consistency. Outcome 3 included questions 20, 21-22, 23-25, 27-29, and 30-34 from the paper final exam. Each question block from the paper final was given a total score between 0 and 1, with partial credit awarded as appropriate. Upon regrading all exams for this learning outcome, I found the total number of points earned for each student (up to a maximum of 5), and finally determined how many students earned a 3.5 or above out of the 5 possible points (since 3.5 out of 5 reflects our desired achievement threshold of 70%).

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
72 out of 88 students (82%) achieved at least 70% on the learning outcome, and the mean score for this outcome was also found to be 82%. This reveals a satisfactory level of proficiency with the learning outcome as well as a high level of consistency with face-to-face results from previous Math 160 assessments. It is worth noting that the 82% of students achieving at least 70% surpasses our goal of having at least 75% of students achieving at least 70%, and the 82% also is

slightly lower than results from regular Math 160 success rates on this objective in the most recent assessment.

Winter 2019	78%
Winter 2021	82%
Winter 2023	86%
Winter 2025	82%

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

This outcome tends to be one of the most challenging of the course, but the 160X students performed very well here as well. 82% of students met the 70% threshold of achievement, and the overall average of scores on these topics was also 82%.

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 the last assessment cycle, we observed that 86% of face-to-face students achieved the 70% threshold, and the overall average on these topics was also 86%. 160X students are performing slightly below this, but not by much. Given that learning outcomes 2 and 3 tend to involve the most challenging content in the course, we know that we can now allocate more time and support to these middle units. At the same time, though, we can see that the 160X students are performing quite similarly to the general 160 population of students.

Outcome 4: Interpret, plan, produce and apply inferential statistics.

- Assessment Plan
    - Assessment Tool: Outcome-related common final exam questions
    - Assessment Date: Spring/Summer 2025
    - Course section(s)/other population: All
    - Number students to be assessed: 10-20% representative random sample of students from all sections of the course

- How the assessment will be scored: The selected set of common questions for this outcome from the paper departmental final exam will be scored with a rubric
- Standard of success to be used for this assessment: 75% of students will score at least 70% on the selected set of questions assessed for this outcome
- Who will score and analyze the data: Course mentor (coordinator)/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)
	2025	

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

# of students enrolled	# of students assessed
	88

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.

All students who completed a final exam for this class in Winter 2025 were assessed (Winter 2025 not available to select in CurricUNET). If the number of finals (88) differs from the total enrollment, either students did not take the final or they may have withdrawn prior to the final exam date.

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 160X students who took the final exam were assessed as part of this report. Note that 160X is only taught in full-term face-to-face sections.

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

A common, proctored final exam for Math 160X was used to assess all outcomes. 89 students took the final exam in the Winter 2025 semester, although an instructor misplaced one exam...resulting in an evaluation of 88 160X students total. I regraded all questions on all exams, regrading for consistency. Outcome 4 included questions 35-36, 37-39, 40-43, and 44-47 from the paper final exam. Each question block from the paper final was given a total score between 0 and 1, with partial credit awarded as appropriate. Upon regrading all exams for this

learning outcome, I found the total number of points earned for each student (up to a maximum of 4), and finally determined how many students earned a 2.8 or above out of the 4 possible points (since 2.8 out of 4 reflects our desired achievement threshold of 70%).

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

73 out of 88 students (83%) achieved at least 70% on the learning outcome, and the mean score for this outcome was found to be 86%. This reveals a high level of proficiency with the learning outcome as well as a high level of consistency with face-to-face results from previous Math 160 assessments. It is worth noting that the 83% of students achieving at least 70% surpasses our goal of having at least 75% of students achieving at least 70%, and the mean score of 86% is actually higher than the mean from regular Math 160 success rates on this objective from the 2023 assessment.

Winter 2017	86%
Winter 2019	84%
Winter 2021	72%
Winter 2023	84%
Winter 2025	83%

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

160X students practically matched face-to-face 160 students from the last assessment for this learning outcome, with 83% of 160X students achieving the 70% standard (compared to 84% from 160). At the same time, the mean of 160X students on this topic was 86%, compared to 84% for their regular math 160 counterparts. 160X students demonstrate a high level of comfort with the conceptual nature of this final course 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.

The supports in place for 160X students appear to be very effective in the areas of the course, such as this, that are more reliant on conceptual understanding. Instructors of 160X will continue to meet in order to discuss consistent, effective ways of promoting big picture understanding of inferential 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.

160X has numerous added supports in place to help level 1 and level 2 math students be successful in the course. The additional contact hour, incorporation of Supplemental Instructors, and collaboration among 160X instructors are all combining to optimize success opportunities for students who typically struggle in math.

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 assessment and the data herein allow me to conclude that our current design for 160X is strong and effective for level 1 and level 2 math students. While we see a slight gap in success rates involving content that is more algebraic in nature (particularly in outcomes 2 and 3), the current format of the course and structured supports warrant a continuation of our approach from this Winter 2025 semester.

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

During in-service in the Fall of 2025, I have planned meetings with 160 and 160X instructors, and I will discuss the findings of this report in detail. We will continue to meet, collaborate, and find common ground on methods that are effective when teaching lower-level math students. Consistency among instructors across the course plays an important role, especially if and when modifications/adjustments are made to typical teaching/assessment strategies. I did notice some scoring differences among classes/instructors when doing this assessment report, so a team approach to effective 160X strategies can prove helpful for those hoping to increase their success rates.

4.

Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	The Math 160 team will consider adding additional content/terminology related to outcome 1 and 2.	Students struggled with constructing and interpreting linear regression problems. Students used to obtain the necessary skills for this in MTH 097, so we'll need to discuss making up for that with additional content in this course.	2025
Other: Survey	I will develop a survey for 160X instructors to administer to their students to gain feedback on the most effective structural supports that WCC is currently offering to those taking the class, including SIs, tutoring, and the additional contact hour.	While I can observe consistent results between 160X and 160, I have a difficult time from this assessment parsing out exactly what contributed most to such a high level of consistency.	2025
Other: Final Exam Consistency	I want to make sure that all instructors are administering their final exams in the same way, to ensure reliability of the results in an assessment such as this. We will codify language/policy to promote a higher	Success rates were noticeably different among instructors and were substantially lower for one instructor's class, in particular. If I remove the one instructor's course from this assessment, the results are much	2025

	level of consistency across the subject.	closer to the success rates from the regular face-to-face 160 courses. Ensuring consistency across instructors provides a fair experience to students while adding more integrity to course grades, in general	

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

6.

III. Attached Files

160X Final Exam Data and Analysis

Faculty/Preparer:	Robert Klemmer	**Date:**	06/13/2025
Department Chair:	Nichole Klemmer	**Date:**	07/01/2025
Dean:	Tracy Schwab	**Date:**	07/02/2025
Assessment Committee Chair:	Jessica Hale	**Date:**	09/17/2025