Assessment Cycle 2025-2026

Mathematics – Core Competency #2

To apply mathematical and analytical reasoning skills.

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Northwestern Mission

Northwestern State University is a responsive, student-oriented institution committed to acquiring, creating, and disseminating knowledge through innovative teaching, research, and service. With its certificate, undergraduate, and graduate programs, Northwestern State University prepares its increasingly diverse student population to contribute to an inclusive global community with a steadfast dedication to improving our region, state, and nation.

Northwestern Core Curriculum

Northwestern has a broadly based core curriculum that is central to the University's mission and consistent with the Louisiana Board of Regents' requirements for general education survey courses applicable to all students regardless of their major. The core encompasses the knowledge and abilities that Northwestern believes are essential to college graduates. Its requirements are designed to improve students' writing and speaking, to expand students' aptitude in mathematics and its applications, to strengthen students' understanding of biological, physical, social, and behavioral sciences, and to develop an appreciation and knowledge of the arts and humanities.

The goal of the core curriculum is for undergraduate students, depending on their respective degree program, to obtain appropriate learning outcomes for this general education competency.

Methodology

(1) Students must complete one of the following Core sequences:

Course Name - Sequence	Methodology	Target	Term
Math 1020 & 1060	Quiz	80%	Fall & Spring
Math 1035 & 1060	Quiz	80%	Fall & Spring
Math 1020 & 1090	Quiz	80%	Fall & Spring
Math 1020 & 2010	Quiz	80%	Fall & Spring
Math 1820 & 1830	Quiz	80%	Fall & Spring
Math 2100 & 2110	Quiz	80%	Fall & Spring

The first four sequences are offered online as well as face-to-face. The last two are taught face-to-face at the Natchitoches campus.

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We will administer a quiz near the end of each core class according to the schedule below. If the course is taught online, we will administer this quiz through Moodle or My Math Lab whether the class is an online section or not. The following table shows the semester in which the quiz is administered.

Course Name	Administration Semester
Math 1020	Fall
Math 1035	Fall
Math 1060	Spring
Math 1090	Spring
Math 2010	Spring
Math 1820	Fall and Spring
Math 1830	Fall and Spring
Math 2100	Fall and Spring
Math 2110	Fall and Spring

(2) Data from the assessment tools (direct & indirect quantitative & qualitative) are collected and returned to the executive director at the end of each term indicated (see Student Learning Outcomes section, below, for details).
(3) The executive director will analyze the data to determine whether applicable outcomes are met.
(4) Results from the assessment will be discussed with the appropriate staff members.
(5) The executive director, in consultation with the staff and senior leadership, will determine proposed changes to measurable outcomes and assessment tools for the next assessment period, and, if needed, service changes.

Student Learning Outcomes (SLO)

SLO 1: Students will apply mathematics/analytical reasoning skills by translating a word problem into an appropriate mathematical model and translating the solution of a model into an answer to a practical problem.

Measure 1.1 Methodology: Direct Measure – Quiz administered in each class. Target: 90% of students will attain a score of 2 (Acceptable) on the questions that ask the student to pick an appropriate mathematical model for a problem. Furthermore, as a departmental goal, at least 80% of students in each individual course will attain a score of 2.

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Course Name	Methodology	Target	Term
Math 1020	Quiz	80%	Fall
Math 1035	Quiz	80%	Fall
Math 1060	Quiz	80%	Spring
Math 1090	Quiz	80%	Spring
Math 2010	Quiz	80%	Spring
Math 1820	Quiz	80%	Fall and Spring
Math 1830	Quiz	80%	Fall and Spring
Math 2100	Quiz	80%	Fall and Spring
Math 2110	Quiz	80%	Fall and Spring

Finding: Target met.

Analysis: In **AC 2024-2025 the target was not met**. Overall, 1198 students were assessed (of which 131 were Dual Enrollment); 1169 met the target score or better. 97.6% of students reached the assessment goal.

Measure 1.1 2024-2025

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	553	551	99.6%
Math 1035	66	56	84.8%
Math 1060	426	417	97.9%
Math 1090	75	75	100.0%
Math 2010	43	40	93.0%
Math 1820	1	1	100.0%
Math 1830	7	7	100.0%
Math 2100	23	18	78.3%
Math 2110	4	4	100.0%

Based on the analysis of the AC 2024-2025 results and to drive further improvement, the following changes were implemented for AC 2025-2026:

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These

findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.

- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

As a result, the overall target was met for AC 2025-2026. The following data was found: 1127 students were assessed (of which 134 were Dual Enrollment); 1100 met the target score or better. 97.6% of students reached the assessment goal.

Measure 1.1 2025-2026

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	522	520	99.6%
Math 1035	47	38	80.9%
Math 1060	431	426	98.8%
Math 1090	51	51	100.0%
Math 2010	24	21	87.5%
Math 1830	9	9	100.0%
Math 2100	24	19	79.2%
Math 2110	19	16	84.2%

The overall target of 90% was successfully met. One class did not achieve the course goal of 80%, but that was due to 1 student. That is, if one additional student in Math 2100 had attained a score of 2 or better, the individual target would have been met. In addition, Math 1820 was not included in the analysis due to low enrollment figures (only 3 students). The two core classes that the majority of Northwestern State University students take, Math 1020 and Math 1060, continue to show remarkable results.

Decision or action to drive future improvement. **Based on the analysis of AC 2025-2026 results,** the faculty will implement the following changes in **AC 2026-2027** to drive the cycle of improvement:

- Faculty teaching courses within this measure will collaborate to develop a bank of common practice problems emphasizing the selection of appropriate mathematical models in applied settings. These materials will be shared across sections to promote greater consistency in instruction and student preparation.
- Instructors will incorporate short model-identification exercises into regular classroom instruction and review sessions to provide students with additional opportunities to distinguish between multiple possible mathematical approaches to a problem.

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- Course coordinators will conduct a comparative review of assessment results across sections to identify instructional strategies utilized in high-performing courses and share those practices with faculty teaching courses that fell below the individual course benchmark.

Measure 1.2 Methodology: Direct Measure – Quiz administered in each class. Target: 80% of students will attain a score of 2 (Acceptable) on questions that ask the student to interpret the solution to a mathematical model as an answer to a practical problem. Furthermore, as a departmental goal, at least 80% of students in each individual course will attain a score of 2.

Course Name	Methodology	Target	Term
Math 1020	Quiz	80%	Fall
Math 1035	Quiz	80%	Fall
Math 1060	Quiz	80%	Spring
Math 1090	Quiz	80%	Spring
Math 2010	Quiz	80%	Spring
Math 1820	Quiz	80%	Fall and Spring
Math 1830	Quiz	80%	Fall and Spring
Math 2100	Quiz	80%	Fall and Spring
Math 2110	Quiz	80%	Fall and Spring

Finding: Target met.

Analysis: In **AC 2024-2025 the target was not met**. The following data was found: 1199 students were assessed (of which 131 were Dual Enrollment); 1175 met the target score or better. 98.0% of students reached the assessment goal.

Measure 1.2 2024-2025

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	553	549	99.3%
Math 1035	66	57	86.4%
Math 1060	427	426	99.8%
Math 1090	75	75	100.0%
Math 2010	43	39	90.7%
Math 1820	1	1	100.0%
Math 1830	7	7	100.0%
Math 2100	23	17	73.9%
Math 2110	4	4	100.0%

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Based on the analysis of the AC 2024-2025 results and to drive further improvement, the following changes were implemented for AC 2025-2026:

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.
- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

As a result, the overall target was met for AC 2025-2026. The following data was found: 1127 students were assessed (of which 134 were Dual Enrollment); 1101 met the target score or better. 97.6% of students reached the assessment goal.

Measure 1.2 2025-2026

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	522	517	99.0%
Math 1035	47	41	87.2%
Math 1060	431	430	99.8%
Math 1090	51	51	100.0%
Math 2010	24	20	83.3%
Math 1830	9	8	88.9%
Math 2100	24	19	79.2%
Math 2110	19	15	78.9%

The overall target of 90% was successfully met. Two classes did not achieve the individual score of 80%, but that was due to 1 student in each class. That is, if one additional student in Math 2100 and Math 2110 had attained a score of 2 or better, the individual target would have been met. In addition, Math 1820 was not included in the analysis due to low enrollment figures (only 3 students). The two core classes that the majority of Northwestern State University students take, Math 1020 and Math 1060, continue to show remarkable results.

Assessment Cycle 2025-2026

Decision or action to drive future improvement. Based on the analysis of the **AC 2025-2026** results, the faculty will implement the following changes in **AC 2026-2027** to drive the cycle of improvement:

- Faculty will incorporate additional classroom discussions requiring students to explain the meaning of mathematical solutions within the context of an applied problem to strengthen conceptual interpretation skills.
- Instructors will implement brief reflective exercises following assessments in which students explain why a particular mathematical conclusion is reasonable or unreasonable within the given scenario.
- Course coordinators will review assessment items for consistency in wording and clarity to ensure students are being evaluated on mathematical interpretation rather than unnecessary reading complexity.

SLO 2: Students will demonstrate the ability to solve a mathematical problem through algebraic, graphical/geometrical, or numerical/statistical methods as appropriate.

Measure 2.1 Methodology: Direct measure – Quiz administered in each class. Target: 95% of students will attain a score of 2 (Acceptable) on the questions that ask a student to solve a problem stated in mathematical symbology. Furthermore, as a departmental goal, at least 80% of students in each individual course will attain a score of 2.

Course Name	Methodology	Target	Term
Math 1020	Quiz	80%	Fall
Math 1035	Quiz	80%	Fall
Math 1060	Quiz	80%	Spring
Math 1090	Quiz	80%	Spring
Math 2010	Quiz	80%	Spring
Math 1820	Quiz	80%	Fall and Spring
Math 1830	Quiz	80%	Fall and Spring
Math 2100	Quiz	80%	Fall and Spring
Math 2110	Quiz	80%	Fall and Spring

Finding: Target met.

Analysis: In **AC 2024-2025 the target was not met.** 1199 students were assessed (of which 131 were Dual Enrollment); 1175 met the target score or better. 98.0% of students reached the assessment goal.

Assessment Cycle 2025-2026

Measure 2.1 2024-2025

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	553	548	99.1%
Math 1035	66	55	83.3%
Math 1060	427	426	99.8%
Math 1090	75	74	98.7%
Math 2010	43	40	93.0%
Math 1820	1	1	100.0%
Math 1830	7	7	100.0%
Math 2100	23	21	91.3%
Math 2110	4	3	75.0%

Based on the analysis of the AC 2024-2025 results and to drive further improvement, the following changes were implemented for AC 2025-2026:

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.
- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

As a result, the overall target was met for AC 2025-2026. The following data was found: 1127 students were assessed (of which 134 were Dual Enrollment); 1096 met the target score or better. 97.2% of students reached the assessment goal.

Assessment Cycle 2025-2026

Measure 2.1 2025-2026

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	522	519	99.4%
Math 1035	47	37	78.7%
Math 1060	431	428	99.3%
Math 1090	51	51	100.0%
Math 2010	24	19	79.2%
Math 1830	9	9	100.0%
Math 2100	24	18	75.0%
Math 2110	19	15	78.9%

The overall target goal of 95% was met. However, individual courses fell short of their respective goals of 80%. While this could be attributed to 1-2 students in each of the failed classes, this particular measure has traditionally had some of the highest success rates. For example, there was a significant drop in success for Math 1035 and Math 2100 from the previous year's assessment.

Decision or action to drive future improvement. Based on the analysis of the **AC 2025-2026** results, the faculty will implement the following changes in **AC 2026-2027** to drive the cycle of improvement:

- The Course Coordinator for MATH 1035 will work with faculty to identify specific numerical and algebraic concepts within the assessment where students most frequently demonstrate errors and develop targeted review materials addressing those deficiencies.
- Faculty teaching courses within this measure will incorporate additional short-form problem sets emphasizing procedural fluency and symbolic manipulation prior to major assessments.
- Instructors in courses falling below the individual benchmark will conduct mid-semester assessment checks to identify students struggling with mathematical notation and provide targeted remediation before the administration of the Assessment Quiz.

Measure 2.2 Methodology: Direct measure – Quiz administered in each class. Target: 90% of students will attain a score of 2 (Acceptable) on the questions that ask a student to solve a word problem. Furthermore, as a departmental goal, at least 80% of students in each individual course will attain a score of 2.

Assessment Cycle 2025-2026

Course Name	Methodology	Target	Term
Math 1020	Quiz	80%	Fall
Math 1035	Quiz	80%	Fall
Math 1060	Quiz	80%	Spring
Math 1090	Quiz	80%	Spring
Math 2010	Quiz	80%	Spring
Math 1820	Quiz	80%	Fall and Spring
Math 1830	Quiz	80%	Fall and Spring
Math 2100	Quiz	80%	Fall and Spring
Math 2110	Quiz	80%	Fall and Spring

Finding: Target met.

Analysis: **In AC 2024-2025 the target was not met.** 1199 students were assessed (of which 131 were Dual Enrollment); 1157 met the target score or better. 96.5% of students reached the assessment goal.

Measure 2.2 2024-2025

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	553	544	98.4%
Math 1035	66	50	75.8%
Math 1060	427	422	98.8%
Math 1090	75	72	96.0%
Math 2010	43	39	90.7%
Math 1820	1	1	100.0%
Math 1830	7	7	100.0%
Math 2100	23	18	78.3%
Math 2110	4	4	100.0%

Based on the analysis of the AC 2024-2025 results and to drive further improvement, the following changes were implemented for the AC 2025-2026:

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These

findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.

- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

As a result, the overall target was met for AC 2025-2026. The following data was found: 1127 students were assessed (of which 134 were Dual Enrollment); 1092 met the target score or better. 96.9% of students reached the assessment goal.

Measure 2.2 2025-2026

Course Name	Total Number of Students Assessed	Total Number of Students Meeting Target	% Meeting Target
Math 1020	522	520	99.6%
Math 1035	47	33	70.2%
Math 1060	431	427	99.3%
Math 1090	51	51	100.0%
Math 2010	24	20	83.3%
Math 1830	9	8	88.9%
Math 2100	24	18	75.0%
Math 2110	19	15	78.9%

The overall target of 90% success was met. Solving a word problem has been a particular challenge and an intense area of focus over the last several years. The efforts we have undertaken and strategies we have implemented have been successful in this area. In AC 2020-2021, our overall success in this measure was 68.7%. In AC 2025-2026, we achieved the highest success rate yet at 96.9%. Only three classes, Math 1035, Math 2100, and Math 2110, did not achieve the individual course goals of 80% success. Once again, some of this can be attributed to one or two students successfully passing the measure, in particular for Math 2100 and Math 2110. However, Math 1035 still lags behind other courses in success.

Decision or action to drive future improvement. Based on the analysis of the **AC 2025-2026** results, the faculty will implement the following changes in **AC 2026-2027** to drive the cycle of improvement:

- The Course Coordinator for MATH 1035 will collaborate with instructors to develop additional classroom examples and guided practice activities focused specifically on translating word problems into mathematical expressions and equations.

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- Faculty will place increased emphasis on identifying relevant information, defining variables, and organizing problem-solving steps during instruction involving applied and word-based problems.
- Instructors will incorporate periodic low-stakes word problem exercises throughout the semester to provide students with repeated exposure to multi-step application problems prior to the Assessment Quiz.

Comprehensive Summary of Key Evidence of Improvement Based on Analysis of Results.
We are pleased to report that the mathematics department met the overall target for each respective measure in which students were assessed over AC 2025-2026. That is, the target was met when the data was considered comprehensively. However, in some instances, individual courses did not meet their intended target. Our work over the last couple of years to drive improvement on solving word problems has been incredibly successful as we reached a record high on overall success at 96.9%.

The following reflects all the changes implemented in AC 2025-2026 to drive the continuous process of seeking improvement. The changes are based on the knowledge gained through the analysis of the AC 2024-2025 results.

SLO1.

Measure 1.1

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.
- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

Measure 1.2

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a

meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.

- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.
- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

SLO2.

Measure 2.1

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.
- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and unknown variables, and determining appropriate next steps within the context of the problem.

Measure 2.2

- The Course Coordinator for MATH 1035 conducted a review of the quiz to ensure alignment with the stated academic standards. Additionally, the Course Coordinator convened a meeting with all MATH 1035 instructors during the designated on-call week to discuss the course curriculum and outline.
- Faculty selected 3-5 student responses from the Assessment Quiz and conducted a microanalysis – a step-by-step breakdown of where students succeeded or struggled. These findings were shared during department meetings along with a suggestion for instructional changes based on what the analysis reveals.
- Instructors collaborated to develop and implement a standardized problem-solving strategy. This strategy emphasized restating the problem in one's own words, identifying known and

unknown variables, and determining appropriate next steps within the context of the problem.

Plan of action moving forward. Overall target success will remain the same for each measure. Departmental goals for each individual course will also remain the same. Overall, to drive the cycle of improvement, we will implement the following changes:

SLO1.

Measure 1.1

- Faculty teaching courses within this measure will collaborate to develop a bank of common practice problems emphasizing the selection of appropriate mathematical models in applied settings. These materials will be shared across sections to promote greater consistency in instruction and student preparation.
- Instructors will incorporate short model-identification exercises into regular classroom instruction and review sessions to provide students with additional opportunities to distinguish between multiple possible mathematical approaches to a problem.
- Course coordinators will conduct a comparative review of assessment results across sections to identify instructional strategies utilized in high-performing courses and share those practices with faculty teaching courses that fell below the individual course benchmark.

Measure 1.2

- Faculty will incorporate additional classroom discussions requiring students to explain the meaning of mathematical solutions within the context of an applied problem in order to strengthen conceptual interpretation skills.
- Instructors will implement brief reflective exercises following assessments in which students explain why a particular mathematical conclusion is reasonable or unreasonable within the given scenario.
- Course coordinators will review assessment items for consistency in wording and clarity to ensure students are being evaluated on mathematical interpretation rather than unnecessary reading complexity.

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SLO2.

Measure 2.1

- The Course Coordinator for MATH 1035 will work with faculty to identify specific numerical and algebraic concepts within the assessment where students most frequently demonstrate errors and develop targeted review materials addressing those deficiencies.
- Faculty teaching courses within this measure will incorporate additional short-form problem sets emphasizing procedural fluency and symbolic manipulation prior to major assessments.
- Instructors in courses falling below the individual benchmark will conduct mid-semester assessment checks to identify students struggling with mathematical notation and provide targeted remediation before the administration of the Assessment Quiz.

Measure 2.2

- The Course Coordinator for MATH 1035 will collaborate with instructors to develop additional classroom examples and guided practice activities focused specifically on translating word problems into mathematical expressions and equations.
- Faculty will place increased emphasis on identifying relevant information, defining variables, and organizing problem-solving steps during instruction involving applied and word-based problems.
- Instructors will incorporate periodic low-stakes word problem exercises throughout the semester to provide students with repeated exposure to multi-step application problems prior to the Assessment Quiz.