Assessment Cycle 2024 – 2025

Program: (BS) Bachelor of Science Mathematics

Department of Mathematics

College of Arts and Sciences

Prepared by: Dr. Frank Serio **Date: 06/09/2025**

Approved by: Dr. Francene Lemoine **Date: 06/09/2025**

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.

College of Arts and Sciences' Mission. College of Arts and Sciences' Mission. The College of Arts & Sciences, the largest college at Northwestern State University, is a diverse community of scholars, teachers, and students, working collaboratively to acquire, create, and disseminate knowledge through transformational, high-impact experiential learning practices, research, and service. The College strives to produce graduates who are productive members of society equipped with the capability to promote economic and social development and improve the overall quality of life in the region. The College provides an unequaled undergraduate education in the social and behavioral sciences, English, communication, journalism, media arts, biological and physical sciences, and the creative and performing arts, and at the graduate level in the creative and performing arts, English, TESOL, and Homeland Security. Uniquely, the College houses the Louisiana Scholars' College (the State's designated Honors College), the Louisiana Folklife Center, and the Creole Center, demonstrating its commitment to community service, research, and preservation of Louisiana's precious resources.

Department of Mathematics. The Department of Mathematics is dedicated to the development of students for roles in academic, professional, and research careers in the various areas of the field of mathematics. The department also fosters the mathematical development of all students through our offerings in general education and support courses for other degree programs. We are committed to providing a modern, effective education to all students using traditional practices and current technology throughout our course offerings. The department delivers Bachelor of Science degrees in Mathematics with available concentrations in Healthcare Informatics and Actuarial Mathematics. A minor in Mathematics is also available.

Mathematics Program Mission Statement: The Department of Mathematics offers a Bachelor of Science in Mathematics. The coursework includes a foundation in the classic coursework in mathematics covering Calculus, Foundations, and Algebra which is

enhanced with a strong student research component. All coursework is delivered using appropriate, modern technology. Mathematics coursework is supplemented with a strong selection of courses in Biological, Physical, and Computer Sciences. Choice of upper-level electives allows for customization of the degree emphasizing preparation for graduate school or a professional career or a mixture of both. Concentrations in Healthcare Informatics and Actuarial Mathematics also require an internship experience further preparing the student for a professional career.

Methodology: The assessment process for the BS program is as follows:

(1) Data from assessment tools (both direct – indirect, quantitative, and qualitative) are collected and returned to the department head.

(2) The department head will analyze the data to determine whether students have met measurable outcomes.

(3) Results from the assessment will be discussed with the faculty.

(4) The Department Head, in consultation with the Advisory Committee, will propose changes to measurable outcomes, assessment tools for the next assessment period and, where needed, curricula and program changes.

Student Learning Outcomes:

SLO 1. Students will gain a strong understanding of the fundamental ideas, concepts, and applications of mathematics

Course Map: Tied to course syllabus objectives.

MATH 2110: Analytic Geometry and Calculus II
MATH 3100: Modern Algebra I
MATH 4950: Mathematics – A Capstone Course

Measure 1.1. (Direct – other)

MATH 2110 (Analytic Geometry and Calculus II) is taken at the end of the freshman year. MATH 3100 (Modern Algebra 1) is the last explicitly required course before the student begins taking upper-level electives in mathematics. MATH 4950 (Mathematics – A Capstone Course) is the senior research project course taken shortly before graduation. By looking at the pass rate in each of these courses, we get a sense of whether majors are making progress. The targets are 75% of Mathematics majors earn a grade of C or higher in MATH 2110, 90% of Mathematics majors earn a grade of C or higher in MATH 3100 and at least 50% of Mathematics majors earn a grade of B or higher in MATH 4950.

Finding: Target was not met.

Assessment Cycle 2024 – 2025

Analysis: In AC 2023 – 2024, the following results were measured:

- MATH 2110 – 100% met target.
- MATH 3100 – 100% of math majors met the target.
- MATH 4950 – 67% of math majors met the target.

Based on the analysis of the AC 2023-2024 results and to drive improvement, faculty implemented the following changes in AC 2024-2025: prerequisites for upper-level courses were reviewed by committee, and the practice of giving feedback using the unified rubric format was implemented in a more structured way throughout the curriculum.

As a result, in AC 2024-2025, the target was not met.

In AC 2024-2025, our targets were:

- MATH 2110 – 75% or higher of mathematics majors would earn C or better.
- MATH 3100 – 90% or higher of mathematics majors would earn C or better, and 50% would earn a B or better.
- MATH 4950 – 90% or higher of mathematics majors would earn C or better, and 50% would earn a B or better.

The following results were measured.

- MATH 2110 – 71% of mathematics majors earned a C or better. (Fall 2024 – 4 of 5 mathematics majors enrolled, Spring 2025 – 1 of 2 mathematics majors enrolled)
- MATH 3100 – There were no students enrolled in this class AC 2024 – 2035.
- MATH 4950 – There were no students enrolled in this class AC 2024 – 2035.

There were some concerns in the last two years that our limited data from MATH2110 made it hard to draw conclusions. Seeing this year's data, it seems that we may need to revisit our approach. There was no data to evaluate our approaches in MATH3100 and 4950. The dip in enrollment from previous years has reached our senior courses; we expect enrollments to return to normal in subsequent years.

Decision*:* In AC 2024-2025, the target was not met. Based on the analysis of the AC 2024 - 2025 results and to drive improvement, faculty will do the following in AC 2025-2026:

- Senior faculty will consider the topics taught in MATH2110, the order in which they are covered, and the instrument used to evaluate calculator competency to ensure all these factors are in alignment with one another.
- Students in MATH 4950 will receive a report on their progress using the Unified Rubrics for Oral and Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.

The faculty believe these changes will contribute to greater student success in these areas.

Measure 1.2. (Indirect – Attitude)

Students make a self-assessment of their preparation in the Reflection Paper Assignment they complete as a part of MATH 4950. We looked at student responses to the prompt "Describe yourself as a mathematician and as a member of the mathematics profession. What can you contribute to the mathematics community and our larger society?"

Finding: No data was collected.

Analysis: In AC 2023 - 2024, 50% of students (Fall 2023 – 1 of 2, Spring 2024 course not taught) gave answers indicating they felt a part of the mathematical community and 50% (Fall 2023 1 of 2, Spring 2024 course not taught) gave answers to indicate they thought they had the relevant skills.

Based on the analysis of the 2023-2024 results, the following changes were planned for 2024-2025 to drive improvement. Discussions were held about these two topics during Pi Day Celebrations, enabling students to reflect on the issues from an earlier point in their time in the major. Discussions on reactivation of our Kappa Mu Epsilon Mathematics honors society chapter did not receive sufficient support to warrant the attempt.

In AC 2024-2025, our target was that at least 90% of students will give a response indicating that they feel they are capable of contributions to the larger community and at least 75% of students will report strengths appropriate to the research project.

There were no students enrolled in MATH4950 during AC 2024 – 2025. There was no data to evaluate our approaches. The dip in enrollment from previous years has reached our senior courses; we expect enrollments to return to normal in subsequent years.

As a result, in AC 2024-2025, there are no findings.

Decision: In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for AC 2025-2026. We will hold discussions regarding the two questions "Describe yourself as a mathematician and as a member of the mathematics profession. What can you contribute to the mathematics community and our larger society?" at the beginning of MATH 4950. This will allow the students to reflect on the issues as they carry out their projects. Similar discussions will take place at social events such as our Pi Day Celebration. If we can generate sufficient student interest, we will reactivate our chapter of Kappa Mu Epsilon Mathematics honor society. The faculty believe these changes will contribute to greater student success in these areas. Targets will remain the same.

Measure: 1.3. **(Direct – Skill/Activity)**

All mathematics majors will take the ETS Major Field Exam in Mathematics during the semester they take MATH 4950. Our target is 75% or more of mathematics majors will score above the 50th percentile on the exam.

Findings: No data was collected.

Analysis: In AC 2023 – 2024, 33% of students (1 of 3 mathematics majors) scored above the 50th percentile. Based on the analysis of the 2023-2024 results, the following changes were planned for 2024-2025 to drive improvement. The faculty planned to review and discuss test-taking strategies for a standardized test where a significant number of questions may be outside of their experience.

There were no students enrolled in MATH4950 during AC 2024 – 2025. There was no data to evaluate our approaches. The dip in enrollment from previous years has reached our senior courses; we expect enrollments to return to normal in subsequent years.

As a result, in AC 2024-2025, there are no findings.

Decision: In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for AC 2025-2026: test-taking strategies for a standardized test where a significant number of questions may be outside of their experience will be reviewed and discussed. The faculty believe these changes will contribute to greater student success in these areas.

SLO 2. Students will demonstrate a college-level proficiency in oral communication of mathematical concepts.

Course Map: Tied to the course syllabuses below.

MATH1010: Introduction to Mathematics
MATH2080: Fundamentals of Proof
MATH4950: Mathematics

Measure: 2.1. **(Direct – Skill/Activity)**

All mathematics majors take MATH 1010 (Introduction to Mathematics) in their first fall semester. Their final project for this course is to make a presentation on a career in mathematics which they have researched. Using our evaluating Oral Communications of Mathematical Ideas rubric, students were evaluated in the categories of Organization, Delivery, and Visual Support; they are given a score of 0-2 in each category. Our target is that 85% of students will score at least 5 out of 6 possible points, and at least 50% will score 6 out of 6 possible points.

Findings: Target not met.

Analysis: In AC 2023-2024, 75% of students (3 of 4 mathematics majors in this class) scored at least 5 of 6 points, and 50% of students (2 of 4) scored 6 out of 6, so the target was not met.

Based on the analysis of the AC 2023-2024 results, the faculty made the following changes, in AC 2023-2024, to drive the cycle of improvement. The faculty not only dedicated an entire class meeting to a thorough discussion of the Unified Rubric but also discussed the rubric in the class meeting dedicated to creating an appropriate PowerPoint presentation. Feedback on the mid-term presentation using the Unified Rubric was still given.

As a result, in AC 2024-2025, the target was not met. In AC 2024-2025, 83% of students (5 of 6 mathematics majors in this class) scored at least 5 of 6 points. Half (50%, or 3 of 6) of students scored 6 out of 6. The students struggled with producing a relevant PowerPoint presentation and understanding the Unified Rubric.

Decision: In AC 2024-2025, the target was not met. Based on the analysis of the AC 2024-2025 results and to drive improvement, faculty will present examples of PowerPoint presentations which meet and fail to meet our expectations during our class session on creating a presentation. Our target will remain the same. The faculty believe these changes will contribute to greater student success in these areas.

Measure: 2.2. (Direct – Skill/Activity)

Mathematics majors take MATH 2080 (Fundamentals of Proof) the fall of their sophomore year. In this course, students are required to present solutions of proofs on the board. Student presentations are evaluated using the Unified Rubric, used in evaluating Oral Communications of Mathematical Ideas. Students were evaluated in the categories of Mathematics and Delivery; they were given a score of 0-2 in each category for each presentation. We will raise our goal to 85% of students achieving an average score of at least 3.25 out of 4 and 50% will achieve an average score of at least 3.5 out of 4.

Findings: Target was not met.

Analysis: In AC 2023-2024, the target was met. All (100%, or 4 of 4) students had a score of 3.25 or higher.

Based on the AC 2023-2024 results, faculty began giving feedback on presentations using the Unified Rubric.

As a result, in AC 2024-2025, the target was not met. In AC 2024-2025, 33% of students (2 of 6 mathematics majors) had a score of 3.25 or higher, and 33% of students had a

score of 3.5 or higher (2 of 6 mathematics majors). Students did well, producing presentations that were relevant to this SLO. However, they struggled with understanding the expectations of the Unified Rubric. Also, because of the larger class enrollment, not every student had the chance to make multiple presentations, and since the scores tend to be lower earlier in the semester, these students did not have a second chance to present after receiving feedback.

Decision: In AC 2024-2025, the target was not met. Based on the analysis of the AC 2024-2025 results and to drive improvement, in AC 2025-2026, faculty will begin requiring presentations earlier in the semester to ensure that all students have more than one opportunity to present. Faculty will meet with students who score below 6 out of 6 to receive specific feedback on how they could better meet the standards. Our targets will remain the same. The faculty believe these changes will contribute to greater student success in these areas.

Measure: 2.3. (Direct – Skill/Activity)

All mathematics majors take MATH 4950 (Mathematics – Capstone Course) either the last or next to last semester before graduation. This class involves an independent research project which culminates in a paper and a public presentation. We use a Unified Rubric to evaluate Oral Communications of Mathematical Ideas. Students were evaluated in all five categories: Organization, Central Message, Mathematics, Delivery, and Visual Support; they will be given a score of 1-4 in each category. Our target is that 70% of students will score at least 18 out of 20 possible points.

Findings: No data was collected.

Analysis: In AC 2023-2024, the target was not met. None (0%, or 0 of 3) of the students scored 18 out of 20.

Based on the analysis of the AC 2023-2024 data, the faculty planned to give reports to students using the Unified Rubrics for Oral Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.

Unfortunately, no students enrolled in this course for AC 2024 – 2025.

As a result, in AC 2024-2025, there was no data to collect.

Decision: In AC 2024-2025, there was no data to analyze. We will continue with the strategies planned for this year in AY 2025-2026: students will receive a report on their progress using the Unified Rubrics for Oral Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course. This is in addition to most of a class period near the beginning of the semester being devoted to discussing the Unified Rubric for Oral and Written Communications, and the level of

mastery we are expecting them to display by the end of the course. The faculty believe these changes will contribute to greater student success in these areas. The target will remain the same.

SLO 3. The students will demonstrate proficiency in written communication of mathematical concepts.

Course Map: Tied to course syllabus below.

MATH 3100: Modern Algebra I
MATH 4950: Mathematics – A Capstone Course

Measure 3.1. (Direct – Skill/Activity)

MATH 3100 (Modern Algebra I) is the last required course before majors begin their upper-level elective courses in mathematics. Responses to questions on the final exam will be analyzed to determine if students are writing about mathematics at the appropriate level. Using the Unified Rubric for evaluating Written Communications of Mathematical Ideas, students were evaluated on two questions from their final exam using the Logical Rigor, Thoroughness and Depth, and Conventions sections of the rubric. Each category was scored from 1-3. Our target is that 100% of students score at least 15 points out of 18 on the assessment and at least 75% score at least 17 out of 18.

Findings: No data was collected.

Analysis: In AC 2023-2024, the target was met. All (100% or 1 of 1) mathematics majors registered in the class scored 15 points out of 18 or better on the rubric, and 0% of students (0 of 1) scored 17 out of 18 or better.

Based on the analysis of the AC 2023-2024 data, in AC 2024-2025, we planned to give feedback on each of the three regular exams using the Unified Rubric for Written Communication in the Logical Rigor, Thoroughness and Depth, and Conventions sections.

Unfortunately, no students enrolled in this course for AY 2024 – 2025.

As a result, in AC 2024-2025, there was no data to collect.

Decision In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for this year in AY 2025-2026: faculty will give feedback on each of the three regular exams using the Unified Rubric for Written Communication in the Logical Rigor, Thoroughness and Depth, and Conventions sections. Our targets will remain the same. The faculty believe these changes will contribute to greater student success in these areas.

Measure: 3.2. (Direct – Skill/Activity)

All mathematics majors take MATH 4950 either the last or next to last semester before graduation. This class involves an independent research project which culminates in a paper and a public presentation. Using the Unified Rubric for evaluating Written Communications of Mathematical Ideas, students were evaluated in all five categories: Context, Organization, Logical Rigor, Thoroughness and Depth, and Conventions; they are given a score of 1-4 in each category. Our target is that 70% of students will score at least 18 out of 20 possible points.

Findings: No data was collected.

Analysis: In AC 2023-2024, the target was not met. The results measured were 0% of students (0 of 2 students registered for the course) scored 18 out of 20 or higher.

Based on the analysis of the AC 2023-2024 data, faculty planned to give receive a report on their progress using the Unified Rubrics for Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.

Unfortunately, no students enrolled in this course for AY 2024 – 2025.

As a result, in AC 2024-2025, there was no data to collect.

Decision: In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for this year in AY 2025-2026: students will receive a report on their progress using the Unified Rubrics for Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course. This is in addition to most of a class period near the beginning of the semester being devoted to discussing the Unified Rubric for Oral and Written Communications, and the level of mastery we are expecting them to display by the end of the course. The faculty believe these changes will contribute to greater student success in these areas. The target will remain the same.

SLO 4. Students will demonstrate proficiency in the use of technology for problem solving and communication.

Course Map: Tied to course syllabus below.

MATH 2110: Analytic Geometry and Calculus II
MATH 4950: Mathematics – A Capstone Course

Measure 4.1. (Direct – Skill/Activity)

MATH 2110 is the second semester of Calculus. The use of technology is integrated into this course. We are in the process of developing a standard instrument to use to assess

competence with computer algebra systems and graphing calculators. Our target is that 75% of students will demonstrate competence.

Findings: Target not met.

Analysis: In AC 2023-2024, the target was met. All (100% or 1 of 1) mathematics majors registered in this course demonstrated competence.

Based on the analysis of AC 2023-2024 data, the faculty made the following changes in 2024-2025 to drive improvement. The instrument used to evaluate calculator competency was administered at the beginning of the course as well as at the completion.

As a result, the target was not met. The results in AC 2024-2025 measured were 71% of students (5 of 7 mathematics majors registered in the class) demonstrated competence.

Decision: In AC 2024-2025, the target was not met. Based on the analysis of the AC 2024-2025 results and to drive improvement, the faculty in AC 2025-2026 faculty will meet to consider the topics taught in MATH2110, the order in which they are covered, and the instrument used to evaluate calculator competency to ensure all these factors are in alignment with one another. We will leave our target the same. The faculty believe these changes will contribute to greater student success in these areas.

Measure 4.2. (Direct – Skill/Activity)

All mathematics majors take MATH 4950 either the last or next to last semester before graduation. This class involves an independent research project which culminates in a paper and a public presentation using presentation software. Using the Unified Rubric for evaluating Oral Communications of Mathematical Ideas. Students were evaluated in all five categories: Organization, Central Message, Mathematics, Delivery, and Visual Support; they will be given a score of 1-4 in each category. For this measure, Organization and Visual Support will be used as they cover the technical aspects of the presentation. Our target is that 90% of students will score at least 6 out of 8 and 50% will score at least 7.

Findings: No data was collected.

Analysis: In AC 2023 – 2024, the target was not met. Two-thirds (67% or 2 of 3) of the students registered scored 6 points or better and 67% of students (2 of 3 students registered) scored 7 or better.

Based on the analysis of the AC 2022-2023 data, the faculty planned to give a report on their progress using the Unified Rubrics for Oral Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.

Unfortunately, no students enrolled in this course for AY 2024 – 2025.

As a result, in AC 2024-2025, there was no data to collect.

Decision: In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for this year in AY 2025-2026: students will receive a report on their progress using the Unified Rubrics for Oral Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course. This is in addition to most of a class period near the beginning of the semester being devoted to discussing the Unified Rubric for Oral and Written Communications and the level of mastery we are expecting them to display by the end of the course. The faculty believes these changes will contribute to greater student success in these areas. The target will remain the same.

Measure 4.3. (Direct – Student Artifact)

All mathematics majors take MATH4950 either the last or next to last semester before graduation. This class involves an independent research project which culminates in a paper and a public presentation. Using the unified rubric for evaluating Written Communications of Mathematical Ideas, students were evaluated in all five categories: Context, Organization, Logical Rigor, Thoroughness and Depth, and Conventions; they will be given a score of 1-4 in each category. The categories in our rubric covering the technical aspects of writing are Context and Conventions. Our target is that 70% of students will score at least 6 out of 8 possible points and 50% of students will score 7 or better.

Findings: No data was collected.

Analysis: In AC 2023-2024, the target was not met. Half (50% or 1 of 2) of the students registered scored 6 points or better, and 0% of students (0 of 2 students registered) scored 7 or better.

Based on the analysis of the AC 2023-2024 data, faculty planned a report on their progress using the Unified Rubrics for Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.

Unfortunately, no students enrolled in this course for AY 2024 – 2025.

As a result, in AC 2024-2025, there was no data to collect.

Decision: In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for this year in AY 2025-2026: students will receive a report on their progress using the Unified Rubrics for Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course. This is in addition to most of a class period near the beginning of the semester being devoted to discussing the Unified Rubric for Oral and Written Communications, and the level of mastery we are

expecting them to display by the end of the course. The faculty believe these changes will contribute to greater student success in these areas. The target will remain the same.

SLO 5. Students will develop the ability to think in an analytical fashion.

Course Map: Tied to course syllabus below.

MATH 2080: Fundamentals of Proof
MATH 4950: Mathematics – A Capstone Course

Measure 5.1. (Direct - Skill)

MATH 2080 is the first course in the mathematics major where students are expected to write at length about mathematics. Responses to questions on the final exam in this course will be evaluated regarding whether the student can write about mathematics in a clear and logically rigorous manner. Using the Unified Rubric for evaluating Written Communications of Mathematical Ideas, students were evaluated in the categories of Logical Rigor, Thoroughness and Depth, and Conventions; they will be given a score of 0-2 in each category. Our target is that 90% of students will score at least 6 out of 6 possible points.

Findings: Target not met.

Analysis: In AC 2023-2024, the target was not met. Half (50% or 2 of 4) of the mathematics majors scored 6 out of 6 possible points.

Based on the analysis of the AC 2023 – 2024 results, faculty gave feedback on each of the three regular exams using the Unified Rubric for Written Communication in the Logical Rigor, Thoroughness and Depth, and Conventions sections.

As a result, in AC 2024-2025, the target was not met. Half (50% or 3 of 6) of the mathematics majors scored 6 out of 6 possible points.

Decision: In AC 2024-2025, the target was not met. Based on the analysis of the AC 2024-2025 results and to drive improvement in AC 2025-2026, the faculty, in addition to giving feedback on each of the three regular exams using the Unified Rubric for Written Communication in the Logical Rigor, Thoroughness and Depth, and Conventions sections, students who score below 6 out of 6 will meet with the faculty to receive specific feedback on how they could better meet the standards. Our targets will remain the same. The faculty believe these changes will contribute to greater student success in these areas.

Measure 5.2. (Direct - Knowledge)

All mathematics majors take MATH 4950 either the last or next to last semester before graduation. This class involves an independent research project which culminates in a

paper and a public presentation. Using the Unified Rubric for evaluating Written Communications of Mathematical Ideas, students were evaluated in all five categories: Context, Organization, Logical Rigor, Thoroughness and Depth, and Conventions; they will be given a score of 1-4 in each category. The categories covering analytical thinking are Organization, Logical Rigor, and Thoroughness and Depth. Our target is that 90% of students will score at least 9 out of 12 and 75% will score at least 10.

Findings: No data was collected.

Analysis: In AC 2023-2024, the target was not met. All (100% or 2 of 2) of the students registered scored 9 points or better, and 50% of students (1 of 2 students registered) scored 10 or better.

Based on the analysis of the AC 2023-2024 data, faculty planned to give students a report on their progress using the Unified Rubrics for Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.

Unfortunately, no students enrolled in this course for AY 2024 – 2025.

As a result, in AC 2024-2025, there was no data to collect.

Decision: In AC 2024-2025, there was no data to analyze. We will maintain the strategies planned for this year in AY 2025-2026: students will receive a report on their progress using the Unified Rubrics for Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course. This is in addition to most of a class period near the beginning of the semester being devoted to discussing the Unified Rubric for Oral and Written Communications, and the level of mastery we are expecting them to display by the end of the course. Our targets will remain the same. The faculty believe these changes will contribute to greater student success in these areas.

Comprehensive Summary of Key Evidence of Improvement Based on Analysis of Results. The following reflects all the changes implemented to drive the continuous process of seeking improvement in AC 2024-2025. These changes are based on the knowledge gained through the analysis of AC 2023-2024 results. Note that due to there being no enrollment in MATH3100 and MATH4950, there was no opportunity to implement and collect data on some of these approaches. Hence, they will also appear as future plans.

- A committee was established to conduct a review of prerequisites within mathematics courses.
- Discussed “what it means to be a mathematician” and “how we contribute to the mathematical community” at social gatherings such as our Pi Day Celebration.
- Explored the potential for reactivation of our chapter of Kappa Mu Epsilon Mathematics Honor Society
- In MATH2110, the instrument for measuring calculator competency was

administered at the beginning as well as at the completion of the course.

- In MATH1010, the Unified Rubric for Oral Communication was discussed during the class period devoted to creating an appropriate PowerPoint presentation.
- Students in MATH2080 received feedback on each presentation and exam using the Unified Rubric for Oral and Written Communication, respectively.
- This strategy was based on data from AY 2023-2024, but it was unable to be implemented or for data to be collected based on no enrollment in the course. It will also appear below.
  Students in MATH3100 will receive feedback on each exam using the Unified Rubric for Written Communication.
- This strategy was based on data from AY 2023-2024, but it was unable to be implemented or for data to be collected based on no enrollment in the course. It will also appear below.
  Students in MATH4950 will receive a report on their progress using the Unified Rubrics for Oral and Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.
- This strategy was based on data from AY 2023-2024, but it was unable to be implemented or for data to be collected based on no enrollment in the course. It will also appear below.
  Test taking strategies for the ETS major field exam will be discussed in MATH4950.

Plan of Action Moving Forward

- In MATH2110, senior faculty will meet to consider the topics taught in MATH2110, the order in which they are covered, and the instrument used to evaluate calculator competency, ensuring all factors are in alignment with one another.
- In MATH1010, faculty will present anonymized examples of presentations from previous classes that both meet and fall short of expectations during the lecture on constructing an effective PowerPoint presentation.
- Students in MATH2080 students will begin making presentations earlier in the semester to ensure each student gets to make presentations on multiple occasions.
- Also, in MATH2080 in addition to giving feedback on each of the three regular exams using the Unified Rubric for Written Communication in the Logical Rigor, Thoroughness and Depth, and Conventions sections, students who score below 6 out of 6 will meet with the faculty to receive specific feedback on how they could better meet the standards.
- This strategy was based on data from AY 2023-2024, but it was unable to be implemented or for data to be collected based on no enrollment in the course.
  Students in MATH3100 will receive feedback on each exam using the Unified Rubric for Written Communication.

- This strategy was based on data from AY 2023-2024, but it was unable to be implemented or for data to be collected based on no enrollment in the course. Students in MATH4950 will receive a report on their progress using the Unified Rubrics for Oral and Written Communication at 5 weeks, mid-term, two weeks before the end of the semester, and at the completion of the course.
- This strategy was based on data from AY 2023-2024, but it was unable to be implemented or for data to be collected based on no enrollment in the course. Test taking strategies for the ETS major field exam will be discussed in MATH4950.