# Assessment Cycle 2021 – 2022

## Mathematics Bachelor of Science Program

**Department of Mathematics**

**College: Arts and Sciences**

**Prepared by: Dr. Frank Serio, Department Head** **Date: 5/31/2022**

**Approved by: Dr. Francene Lemoine, Dean** **Date: 6/20/2022**

**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 the 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. The 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.

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**Analysis:** In AC 2020 – 2021, the following results were measured:

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

Based on the analysis of the AC 2020-2021 results and to drive improvement, faculty implemented the following changes in AC 2021-2022. Decisions were made about standardizing the content of MATH 2110; two options were tested in fall and spring. In MATH 3100, adjustments were made to class participation grades and flipped-classroom instruction was implemented. In MATH 4950, the Unified Rubric (see Attachment 1) was used to standardize the evaluation of student work and provide consistent feedback.

In AC 2021-2022, 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 – 100% of mathematics majors earned a C or better. (Fall 2021 – 1 of 1, Spring 2021 no mathematics majors enrolled)
- MATH 3100 – 75% of mathematics majors earned a C or better, 75% of mathematics majors earned a B or better. (Fall 2020 – 3 of 4, Spring 2021 course is not taught)
- MATH 4950 – 100% of mathematics majors earned a C or better, 100% of mathematics majors earned a B or better. (Fall 2020 – 0 of 0, Spring 2021 – 1 of 1)

The standardization of topics in MATH2110 seems to have benefited these students. Students in MATH3100 responded well to the new pedagogy; the one student who did not successfully complete the course has a chronic medical condition which affects his ability to participate in class. Use of the Unified Rubric (This document includes rubrics for both oral and written communication; a copy was attached to the AC2020 – 2021 report) in MATH4950 seems to have helped the student to do well in this class although as will be seen later in some of the measures that are more granular than this one, their performance was not uniform across all categories.

**Decision:** Based on the analysis of the AC 2021-2022 results and to drive improvement, faculty will do the following in AC 2022-2023:

- The newly standardized syllabus for MATH 2110 will be taught going forward.
- As a time saving measure, MATH 3100 was taught with videos which had been recorded in the previous year during the lockdown. They were not recorded with

the intent of being reused and often contained extraneous matters as they were simply recordings of actual classes. For Fall 2022, new video lectures will be recorded with the intent of them being used for flipped classroom and being reusable for several years.

- Students in MATH 4950 will have had even greater exposure to the Unified Rubric in their earlier courses. Faculty will give all feedback to students using the benchmarks of this rubric to allow them to better grasp what they need to improve in their written and oral communications.

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?" Our target is that 75% of respondents will see themselves as part of the community and able to contribute.

In MATH 4950, students complete the Graduating Senior Survey Assignment. The faculty examine responses to questions on the ability to "reason abstractly" and "use numerical data and statistics." Our targets are 75% or more of Mathematics majors will report "Satisfied" or "Very Satisfied" to the questions regarding how their education has helped them in these areas.

As a part of our current QEP, Learning for Life, all students participate in a 6-hour Capstone Course. Our students complete a 2-semester, Student Research Project in MATH4940/4950. At the end of their capstone experience, students complete a reflection assignment. We decided to analyze responses in this instrument to measure the students' self-assessment of their readiness to enter the mathematical community. One of the prompts is "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?" Our target is that at least 75% of students will give a response indicating they feel they are capable of contributions to the larger community.

**Finding:** Target was met.

**Analysis:** In AC 2020-2021, Northwestern began using the Handshake Student Exit Survey instead of the previous Graduating Senior Survey instrument. Comparable data is not available from the new survey. We were unaware of this change until we requested data from Institutional Research at the end of AC2020 – 2021 when last year's report was written.

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In AC 2021-2022, we began analyzing the responses from the QEP Reflection Document. 100% of students (Fall 2020 – 0 of 0, Spring 2021 – 1 of 1) reported feeling their experience in completing the mathematics degree would enable them to contribute to the larger mathematical community.

**Decision:** Based on the analysis of the AC 2021-2022 results and to drive improvement in AC 2022-2023, faculty will also analyze responses to the "Describe your strengths and weaknesses as they pertain to mathematical research. What skills do you think helped you through your experiential learning? How do you believe this experience has helped you address your weaknesses?" prompt in the MATH 4950/QEP reflection assignment which should give us a broader view of the students' self-assessment of their preparation.

**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 50$^{th}$ percentile on the exam.

**Findings:** No data was collected.

**Analysis:** Data collection in this measure continues to be plagued by post-Covid logistical difficulties. Only one student should have taken the exam in the spring of 2022, but this did not occur.

**Decision:** Based on the on-going problems, the Department Head will take responsibility for scheduling this exam. We believe that will allow us to successfully collect this data for AC 2022 – 2023.

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

Course Map: Tied to course syllabus 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) the first fall semester they are the major. Their final project in 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 goal 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 2020-2021, 100% of students (3 of 3 mathematics majors in this class) scored at least 5 of 6 points.

Based on the analysis of the AC 2020-2021 data, the following changes were implemented. Students were introduced to the Oral Communication portion of the Unified Rubric early in the semester. This allowed them the ability to better understand how they would be evaluated. The plan to evaluate the mid-term presentation using the rubric did not work out as it was not available at that time.

In AC 2021-2022, 100% of students (2 of 2 mathematics majors in this class) scored at least 5 of 6 points. 0% of students (0 of 2) scored 6 out of 6.

**Decision:** Based on the analysis of the AC 2021-2022 results and to drive improvement, faculty will begin in AC 2022-2023 by giving feedback on the mid-term presentation using the Unified Rubric. This will give the students more granular feedback and allow them to craft a stronger final presentation. Our targets will remain the same.

**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 for use 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. Our goal is that 85% of students will have an average score at least 3.25 out of 4 possible points.

**Findings**: Target not met.

**Analysis:** In AC 2020-2021, 100% of mathematics majors (2 of 2 enrolled in the course) met the standard.

Based on this analysis, the faculty implemented the following changes for AC 2020-2021. The Unified Rubric for Oral Communication was discussed with students early in the class. This allowed them to consider the benchmarks as they made their presentations. In addition, we moved to teaching with the flipped classroom pedagogy.

In AC 2021-2022, 50% of students (1 of 2 enrolled in the course) met the target. One student made an average score of 3.5 while the other only managed a 3.0. As might be expected at this stage in their development, the Mathematics component was the part they struggled with. Both students had good scores in the delivery component.

**Decision:** Based on the analysis of the AC 2021-2022 results and to drive improvement, faculty, in AC 2022-2023, will return to teaching this course with standard lecture

pedagogy. Faculty felt that the more traditional approach might be more beneficial to student learning.

**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 goal is that 70% of students will score at least 18 out of 20 possible points.

Findings: Target not met.

**Analysis:** In AC 2020-2021 50% of students (1 of 2 students registered) scored at least 18 out of 20.

Based on the analysis of the AC 2020-2021 data, the Unified Rubric was fully implemented including discussions of its benchmarks and how they would be used to evaluate performance. Faculty began using the rubric to give feedback on student performance throughout the course.

Despite these changes in AC 2021-2022, 0% (0 of 1 students) scored 18 out of 20. This student only scored 15 out of 20. Their average scores were in the range of 2.5 – 3.25 in each category. This student who was a non-native English speaker struggled with executing the presentation portion of the course.

**Decision:** Based on the analysis of the AC 2020-2021 results and to drive improvement, faculty, in AC 2022-2023, will begin giving feedback to students using only the benchmarks of this rubric with particular attention to the mid-term presentation to allow them to better grasp what they need to improve in their oral communications.

**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 goal was that 85% of student would score at least 15 points out of 18 on the assessment and at least 50% would score 17 out of 18.

**Findings**: Target met.

**Analysis:** In AC 2020 – 2021, the success rate was 100% (1 of 1 student registered in the class) scored 15 points out of 18 or better on the rubric.

Based on the analysis of the AC 2020-2021 data, in AC 2021-2022, we moved to teaching this class via flipped classroom pedagogy. Homework assignments were essential to students mastering written communication skills; class time was restructured to allow for approximately half of the time in class spent working on these assignments.

As a result of these changes in AC 2021-2022, 100% of mathematics majors (3 of 3 students registered in the class) scored 15 points out of 18 or better on the rubric and 67% of students (2 of 3) scored 17 out of 18 or better.

**Decision:** Based on the analysis of the AC 2021-2022 results and to drive improvement, the faculty in AC 2022-2023 will record new video lectures with the intent of their use for flipped classroom instruction and being reusable for several years. In addition, the department will raise the goal to 100% of student scoring at least 15 points out of 18 on the assessment and at least 75% scoring at least 17 out of 18.

**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 goal is that 70% of students will score at least 18 out of 20 possible points.

**Findings**: Target was met.

**Analysis:** In AC 2020-2021, the results measured were 50% of students (1 of 2 students registered for the course) scored 18 out of 20 or higher.

Based on the analysis of the AC 2020-2021 data, faculty began giving feedback to students using the benchmarks of the rubric with particular attention to the mid-term paper to allow them to better grasp what they need to improve in their written communications.

In AC 2021-2022, the results measured were 100% of students (1 of 1 student registered for the course) scored 18 out of 20 or higher.

**Decision:** Based on the analysis of the AC 2021-2022 results and to drive improvement, in AC 2022-2023, the faculty will give all feedback to students using the benchmarks of this rubric to allow them to better grasp what they need to improve in their written communications.

**SLO 4. Students will demonstrate proficiency in 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 goal is that 75% of students will demonstrate competence.

**Findings**: Target was met.

**Analysis:** In AC 2020 – 2021 the success rate was 100% (1 of 1 student registered in this course) demonstrated competence.

Based on the analysis of AC 2020-2021 data, faculty met in August and determined which topics should be included in MATH 2110 including which technological skills. The new instrument was developed.

Results collected in AC 2021-2022 were that 100% (1 of 1 student registered in this course) demonstrated competence.

**Decision:** Based on the analysis of the AC 2021-2022 results, faculty will review the instrument developed. We will leave our target the same since we had such limited data collected.

**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 goal is that to 90% of students will score at least 6 out of 8 and 50% will score at least 7.

**Findings**: Target was not met.

**Analysis:** In AC 2020-2021, the success rate was 100% of students (2 of 2 students registered) scored 6 points or better and 50% of students (1 of 2 students registered) scored 7 or better.

Based on the analysis of the AC 2019-2020 data, faculty began giving feedback to students using the benchmarks of this rubric with particular attention to the mid-term presentation to allow them to better grasp what they need to improve in the technical aspects of their presentation.

Results measured in AC 2021-2021 were 100% of students (1 of 1 student registered) scored 6 points or better and 0% of students (0 of 1 student registered) scored 7 or better.

**Decision:** Based on the analysis of the AC 2020-2021 results and to drive improvement, faculty will give all feedback to students using the benchmarks of this rubric to allow them to better grasp what they need to improve in the technical aspects of their presentation.

**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 goal 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**: Target met.

**Analysis:** In AC 2020-2021 were 100% of students (2 of 2 students registered) scored 6 points or better and 50% of students (1 of 2 students registered) scored 7 or better.

Based on the analysis of the AC 2020-2021 data, faculty began giving feedback to students using the benchmarks of this rubric with particular attention to the mid-term presentation to allow them to better grasp what they need to improve in the technical aspects of their paper.

Results measured in AC 2021-2022 were 100% of students (1 of 1 student registered) scored 6 points or better and 100% of students (1 of 1 student registered) scored 7 or better.

**Decision:** Based on the analysis of the AC 2020-2021 results and to drive improvement, in AC 2022-2023, the faculty will give all feedback to students using the benchmarks of this rubric to allow them to better grasp what they need to improve in the technical aspects of their paper. Given the small size of the data set revising our target at this point seems premature.

**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 goal is that 90% of students will score at least 6 out of 6 possible points.

**Findings:** Target was not met.

**Analysis:** In AC 2020-2021, 100% of mathematics majors (2 of 2 enrolled in the course) met the standard

Based on this analysis, faculty began teaching this course with flipped classroom pedagogy to provide the students with greater access to faculty assistance while completing homework assignments and preparing for presentations.

In AC 2020-2021, 50% of mathematics majors (1 of 2 enrolled in the course) met the standard.

**Decision:** Based on the analysis of the AC 2020-2021 results and to drive improvement, in AC 2022-2023, the faculty will return to teaching this course with standard lecture pedagogy. Faculty felt that the more traditional approach might be more beneficial to student learning.

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**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 goal is that 90% of students will score at least 9 out of 12 and 50% will score at least 10.

**Findings:** Target was met.

**Analysis:** In AC 2020-2021 were 50% of students (1 of 2 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 2019-2020 data, faculty began giving feedback to students using the benchmarks of this rubric with particular attention to the mid-term presentation to allow them to better grasp what they need to improve in the mathematical content of their paper.

Results measured in AC 2021-2022 were 100% of students (1 of 1 student registered) scored 9 points or better and 100% of students (1 of 1 student registered) scored 10 or better.

**Decision:** Based on the analysis of the AC 2020-2021 results and to drive improvement, in AC 2022-2023, the faculty will give all feedback to students using the benchmarks of this rubric to allow them to better grasp what they need to improve in the technical aspects of their paper. Given the small size of the data set revising our target at this point seems premature.

**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 2021-2022. These changes are based on the knowledge gained through the analysis of AC 2020-2021 results.

- Decisions were made about standardizing the content of MATH 2110; two options were tested in fall and spring. In MATH 3100, adjustments were made to class participation grades and flipped-classroom instruction was implemented. In MATH 4950, the Unified Rubric (see Attachment 1) was used to standardize the evaluation of student work and provide consistent feedback.
- Northwestern began using the Handshake Student Exit Survey instead of the previous Graduating Senior Survey instrument.
- Students were introduced to the Oral Communication portion of the Unified Rubric early in the semester. This allowed them the ability to better understand how they

would be evaluated.

- The Unified Rubric for Oral Communication was discussed with students early in the class. This allowed them to consider the benchmarks as they made their presentations. In addition, we moved to teaching with the flipped classroom pedagogy.
- We moved to teaching this class via flipped classroom pedagogy. Homework assignments were essential to students mastering written communication skills; class time was restructured to allow for approximately half of the time in class spent working on these assignments.
- Faculty began giving feedback to students using the benchmarks of the rubric with particular attention to the mid-term paper to allow them to better grasp what they need to improve in their written communications.
- Faculty met in August and determined which topics should be included in MATH 2110 including which technological skills. The new instrument was developed.
- Faculty began giving feedback to students using the benchmarks of this rubric with particular attention to the mid-term presentation to allow them to better grasp what they need to improve in the technical aspects of their presentation.

## Plan of Action Moving Forward

- Faculty will meet during on-call week in August to review a formal instrument to use in measure 4.1.
- MATH 2080 will return to a traditional lecture format as the flipped classroom did not seem to improve outcomes in this course.
- MATH 3100 will continue in flipped classroom pedagogy, but new lecture videos recorded expressly for this format will be created and used.
- Faculty will continue giving a thorough discussion of the uniform rubric at the beginning of appropriate courses to make the basis for their evaluations clear. Faculty will begin to use the benchmarks of the rubric when giving all feedback in MATH4940 and MATH 4950.