

**Report of Student Learning and Achievement
Concordia University Irvine
School of Arts and Sciences – Mathematics Program**

For Academic Year:	2025-2026
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School of Arts and Sciences Mission
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Mathematics Program Purpose

The School of Arts & Sciences fosters the virtues of curiosity, courage, and humility in our students, thereby preparing them for their vocations in service to others. This is accomplished within the Lutheran liberal arts tradition by engaging with many enduring questions while relying upon the truth found in Jesus Christ.

The School of Arts and Sciences teaches a majority of the Q&I general education offerings of the university and monitors the courses, majors, minors, and professional programs through its different departments for the purpose of developing "wise, honorable, and cultivated citizens" in a variety of fields of study.

The Mathematics Bachelor of Arts develops student numerical and analytical abilities to investigate, formulate, analyze, and articulate solutions to problems within the discipline of mathematics, including the application of mathematical ideas to real-world problems and issues, and the theoretical foundations of mathematics.

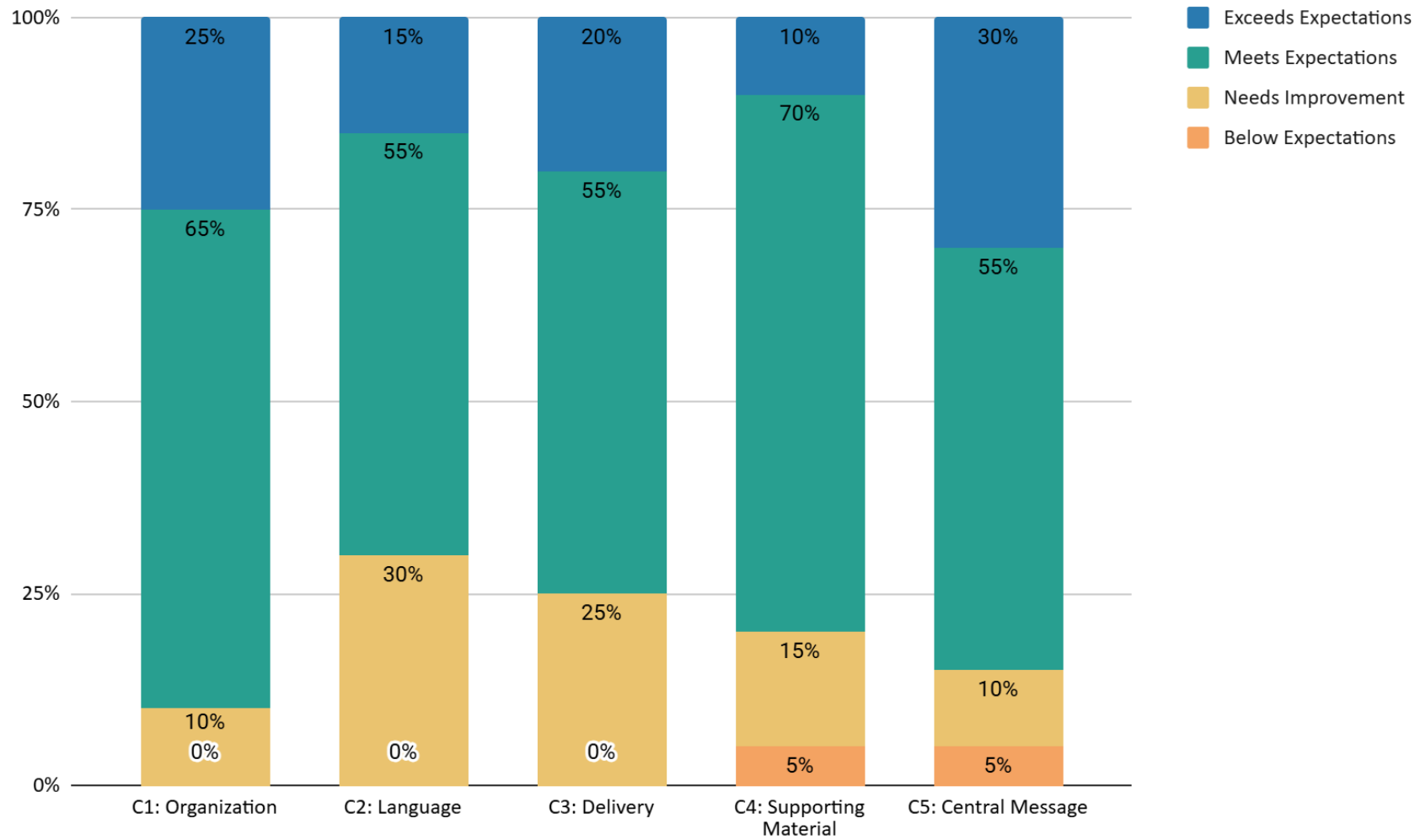
Program Learning Outcomes (PLOs)

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| 1. Write, critique and interpret various forms of mathematical proof. |
| 2. Calculate, apply and synthesize core content in mathematics. |
| 3. Utilize effective strategies in problem solving, including data analysis and multiple representations of mathematical ideas (visualization/ graphs, symbolic notations and numerical data). |
| 4. Clearly communicate mathematical concepts, vocabulary and notation. |

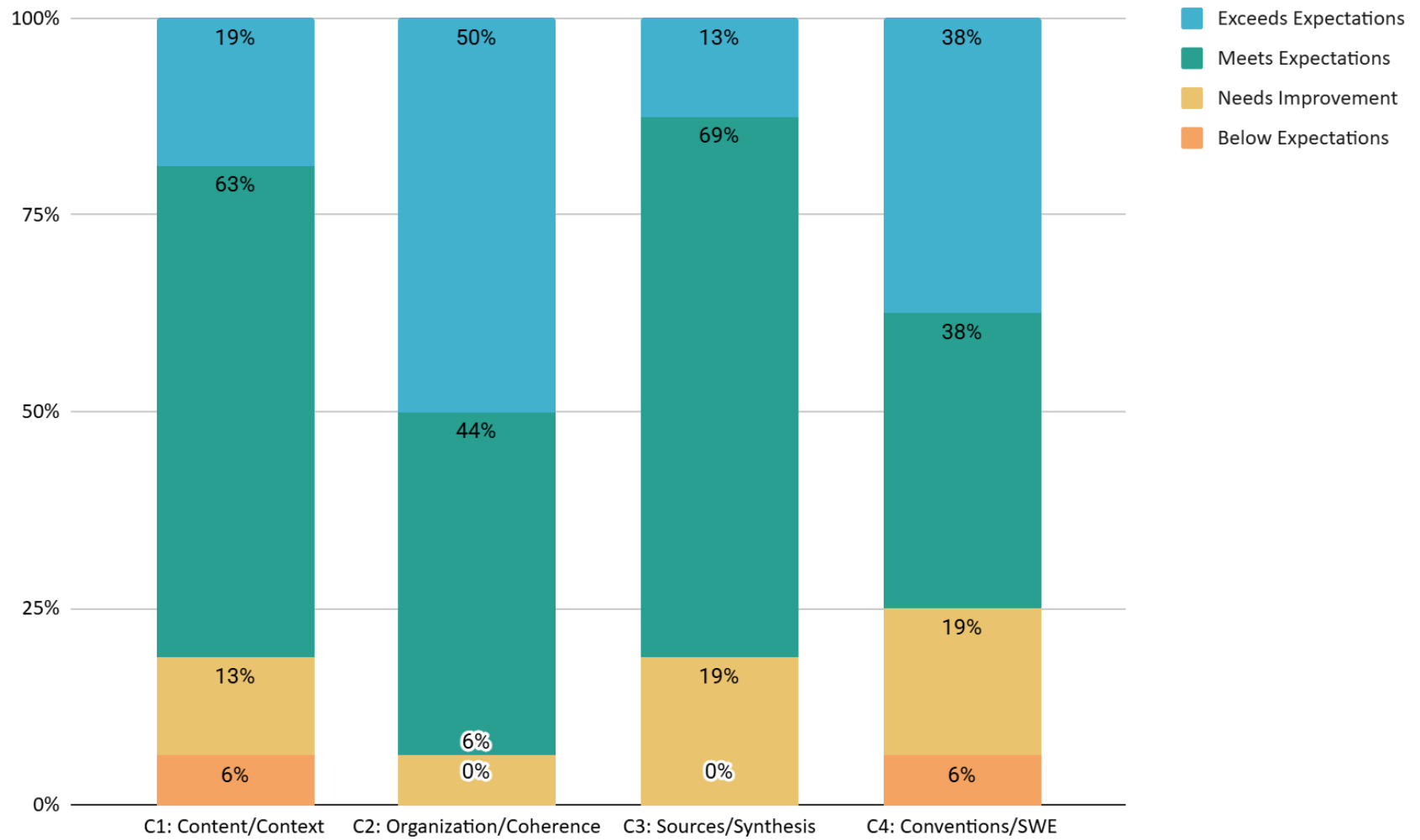
Program Assessment Overview Aligns with ULO: Written Communication / Oral Communication			
PLOs Assessed	Evidence and Assessment Instrument	Performance Objectives (Targets/Criteria) Measures:	Results for Measures of Student Learning:
PLO #1 - Clearly communicate mathematical concepts, vocabulary, and notation.	MTH 496 - Final Paper and Presentation	At least 75% of achievement in all areas of rubric	Oral Communication Percentage of students who met or exceed expectations: Organization - 90% Language - 70% Delivery - 75% Supporting Material - 80% Central Message - 85%
PLO #2 - Write, critique, and interpret various forms of mathematical proofs.	MTH 313 - Final Exam Questions MTH 473 - Final Exam Question	At least 75% of achievement in all areas of rubric	Written Communication Percentage of students who met or exceed expectations: Content / Context - 81% Organization / Coherence - 94% Sources / Synthesis - 81% Conventions / SWE - 75%

Program Assessment Results

Oral Communication



Written Communication



Summary of Program Assessment Findings

Oral Communication

These numbers show that overall, students did fairly well in their ability to communicate their mathematical concepts, vocabulary, and notation, both orally and in writing. Expectations were met or exceeded in all areas of the written communication assessment on the MTH 496 papers. This shows that some of the additional editing and project checkpoints seem to help improve their overall writing and finals papers; the mathematics department worked this year to develop written communication skills, including using and citing source information, clear analyses and synthesis of the material, and articulation of the conclusions.

Additionally, students met or exceeded expectations in four of the five categories in oral communication; students scored the lowest in the “Language” category, with only 70% of the scores meeting or exceeding expectations. We will continue to work with students on their oral presentations, helping them clearly explain their research question and communicating their results.

Written Communication

Overall, we were pleased with these results, as most showed that students are meeting or exceeding the expectations for writing mathematical proofs. All of these samples were collected in a final exam environment (Fall 2025 and Spring 2026), without time for students to edit their proofs. However, this showed that students could clearly identify the proof method, and write a coherent proof, communicating their logic.

We will continue to work with students on good proof writing, and consider other opportunities to assess their proofs in the future. We could use a Proof Notebook, which would allow students time to edit their proofs for clarity or correctness after initial submission, or we could use Weekly Homework assignments, which students are required to type in LaTeX and submit. Overall, we were satisfied with their proofwriting skills used in this assessment.

Summary of Achievement Outcomes
Aligns with ULO: Written Communication / Oral Communication

2025-2026 PLO Assessed: Written Communication	Student Evidence: MTH 313 - Final Exam Questions MTH 473 - Final Exam Question	Student Evidence: N/A
Criterion Measured	Performance Target Was...	Performance Target Was...
Content / Context	Met	
Organization / Coherence	Met	
Sources / Synthesis	Met	
Conventions / SWE	Met	
2025-2026 PLO Assessed: Oral Communication	Student Evidence: MTH 496 - Final Paper and Presentation	Student Evidence: N/A
Criterion Measured	Performance Target Was...	Performance Target Was...
Organization	Met	
Language	Not Met	
Delivery	Met	
Supporting Material	Met	
Central Message	Met	

Program Proposed Course of Action for Improvement in Learning Outcomes

The results from this report have been shared with the Mathematics Department, as well as the Dean of the School of Arts and Sciences. The Department will further discuss changes, in conjunction with the results from the Computer Science and Engineering Department findings, at a future meeting. After the Department considers the APLO results, potential changes to both curriculum and course assignments will be discussed with the members of the mathematics faculty. Additionally, discussing how to support students to better prepare for proofs on their Final Exams and Oral Presentations will be discussed, and further changes will be made during the 2026-2027 academic year, as deemed necessary by the department.