ANNUAL ASSESSMENT REPORT

College	Science
Department	Mathematics
Program	BS
Reporting for Academic Yea	2016-2017
Last 5-Year Review	2010-2011
Next 5-Year Review	2017-2018
Department Chair	Julie Glass
Date Submitted	10/20/17

SUMMARY OF BS ASSESSMENT

BACHELOR'S OF SCIENCE IN MATHEMATICS

A. Program Learning Outcomes (PLO)

Students graduating with a Bachelor of Science in Mathematics will be able to:

1. Apply the definitions, techniques and theorems of abstract mathematics (ILO's #1 & #6)
2. Apply the definitions, techniques and theorems of applied mathematics (ILO's #1 & #6)
3. Apply mathematical algorithms to solve problems, both individually and in teams (ILO's #2 & #4)
4. Creatively conjecture and rigorously write, analyze and critique proofs (ILO's #1 & #6)
5. Communicate mathematics to others in written and/or oral form with precision, clarity and organization (ILO's #2 & #4)
6. Apply techniques of at least one area of mathematics in depth (ILO's #1 & #6)

B. Program Learning Outcome(s) Assessed

PLO 2: Apply the definitions, techniques and theorems of applied mathematics
PLO 4: Creatively conjecture and rigorously write, analyze and critique proofs

This is the first year that these PLO's have been assessed.

we created our five-year assessment plan. For each course assessed, a final exam question

was identified as a typical problem for the course that assessed the given PLO. These problems were chosen by the department during one of our monthly department meetings.

Sample Characteristics:The courses selected include both required courses for all options in the major and required courses for the Applied and Teaching options. The exam questions were selected carefully to ensure they tested material that is essential in the courses.

Data Collection: Final exams were collected by the department assessment coordinator. Each problem was scored by the undergraduate committee for readability, validity and fluency using the rubric in Appendix A

Data Analysis: Courses Assessed
MATH 3121, 3301, 3331, 3600, 3750, 3841

Math 3121 Abstract Algebra, SLO 4/Mastered (15 Students)
Problem: Prove a function is a group homomorphism.

	Missing	Emerging	Developing	Mastering
Readability	7%	13%	53%	27%
Validity	0%	25%	25%	50%
Fluency	0%	37%	57%	6%

These scores indicate 27% of the students have mastered the ability to write a readable proof using a basic definition, 50% mastered the ability to write a valid proof, and 6% of the students mastered the ability to write a proof with fluency.

Math 3301 Real Analysis II, SLO 4/Mastered (9 students)

These scores indicate most of the students have mastered the ability to apply techniques of applied mathematics although only 38% are able to write a fluent solution.

Math 3600 Number Theory, SLO 2/Mastered (7 students)
Problem: Prove congruence properties of even and odd integers

	Missing	Emerging	Developing	Mastering
Readability	0%	0%	29%	71%
Validity				

APPENDIX A: SAMPLE RUBRICS

SLO 1: Apply the definitions, techniques and theorems of abstract mathematics

SLO 1 RVF Rubric – Readability, Validity, Fluency

Missing (0)	Emerging (1)

	mathematical language is used. There is misuse of notation/symbols.	mathematical languag or notation is used.	mathematical language and notation is used.	mathematical language and notation is used.
Validity	Significantly inaccurate or irrelevant steps in algorithms are present. Important information is missing.	Mostly accurate steps in algorithms are present. May include some irrelevant or unjustified statements.	Steps in algorithms are accurate and relevant.	Steps in algorithms are accurate and relevant and connected/deduced correctly.
Fluency	No coherent flow of ideas Listing facts without a sense of how to link them to get a correct solution.	Partially coherent and organized, but inconsistent. Appeals to intuition. Some unjustified or improperly justified steps in algorithms are present.	A correct and essentially complete solution given. Logic, steps in algorithms, and flow overall sound. Some small gaps in solution may require "benefit of the doubt."	A correct, fully justified, and complete solution given. Elegance or mathematical maturity present.