Bachelor of Science in Mathematics

Mission

The mission of the Hawaii Pacific University Mathematics Program is to promote analytical thinking and quantitative literacy; foster a lifelong appreciation of mathematics; and enable students to use mathematical methods and appropriate technology in real world and abstract environments.

Academic year 2025

Bachelor of Science in Mathematics Learning Outcomes

Program Learning Outcome 1 MET

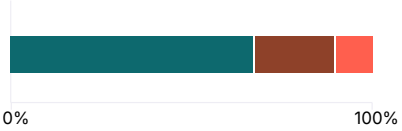
Interpret, calculate, analyze, represent, and clearly communicate quantitative information through mathematical tools (e.g., equations, graphs, or diagrams).

MEASURES	RESULTS	ACTIONS
Optimization Word problem Students completed the attached problem as part of the final exam. and it was scored on a rubric with 5 criteria Direct - Exam (Course) *Calculus I: MATH 2214* **Target** 70% of the students will average 2.5 of higher across the rubric. 2 -2.4 is approaching expectations, 2.5-2.9 is meeting expectations and 3 or above is exceeding expectations Critical Thinking Writing Assignment2023.docx	MET Optimization Word problem Exceeded Met Approached Not Met 0% 100% Exceeded: 51% Met: 22% Approached: 5% Not Met: 22% Met Total: 73% Not Met Total: 27% **Summary** summarize results including discussing performance on each criterion MPLO Fall 2024 Pat.xlsx PLO Math 2214 Fall 2024.xlsx **Analysis** Decline in algebra skills since the pandemic. Students either did really well on the entire problem or really poorly.	**Maintain Assessment Strategy** Maintain Assessment Strategy

Exponential Generating Function for Derangements Students were asked to find the exponential generating function for the derangements on a set of n elements and prove their result *Combinatorics and Graph Theory: MATH 4301* **Target** 67% to score 3 or higher Math 4301 Fall 2023 MPLO 1.docx	*No results have been added.*	*No actions have been added.*

Program Learning Outcome 2 NOT MET

Solve applied problems in mathematics, statistics, or in other math-based disciplines.

MEASURES	RESULTS	ACTIONS
1123 Exam questions Students completed 3 questions (attached) and were awarded up to 1 point on each. Direct - Exam (Course) *Statistics: MATH 1123* **Target** 70% of the students will achieve an average (over the 3 questions) of 2 or above. 2.5 exceeds, 1.5 approaches. 1123 MPLO 2 question 1, contingency table OR probability.PNG 1123 MPLO 2 question 2, hypothesis test.PNG 1123 MPLO 2 question 3, box plot.PNG	NOT MET 1123 Exam questions Exceeded Approached Not Met  0% 100% Exceeded: 67% Approached: 22% Not Met: 10% Met Total: 67% Not Met Total: 33%	**Maintain Assessment Strategy** Close enough to being met to justify maintaining assessment strategy for the time being.

Program Learning Outcome 3 MET

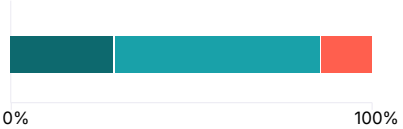
Construct and critique mathematical proofs.

MEASURES	RESULTS	ACTIONS
In Class Quiz students were asked to prove: T |= phi implies T |- phi if and only if T is consistent implies T has a model Direct - Exam (Course)	MET In Class Quiz Exceeded Not Met 0% 100%	**Maintain Assessment Strategy** Maintain Assessment Strategy

Fndtn Math Logic & Application: MATH 3110 **Target** 75% score above 3 PLO Math 3110 Fall 2024.xlsx	*Values are not shown when too close to each other. Click or use arrow keys to see details.* Exceeded: 75% Not Met: 25% Met Total: 75% Not Met Total: 25% **Analysis** Four students were tested. Three achieved a perfect score. Thus 75% achieved score 4 perfect. One student struggled with comprehending the proof. the average score on a scale 1-4 was 3.25	

Program Learning Outcome 4 MET

Develop comprehensive oral skills using the language of mathematics in order to articulate mathematical ideas and explain results.

MEASURES	RESULTS	ACTIONS
Partial differential equation and presentation Students completed the attached problems as assignments and present the work in the class , and it was scored with 5 criteria. Direct - Assignment *Methods of Appl Mathematics I: MATH 4470* **Target** 70% of the students will average 2.5 of higher. 2 -2.4 is approaching expectations, 2.5-2.9 is meeting expectations and 3 or above is exceeding expectations pde HW and project.pdf	MET Partial differential equation and presentation Exceeded *Values are not shown when too close to each other. Click or use arrow keys to see details.* Exceeded: 100% Met Total: 100% Not Met Total: **Analysis** The student solved all the problems, presented the mathematics work and explained the ideas in class clearly and fluently. Minor mistakes were pointed out by instructor.	*No actions have been added.*
Final Project Presentation Direct - Presentation *Mathematical Cryptology: MATH 3234* **Target** 80% of students will achieve a score of 80% or above	MET Final Project Presentation Exceeded Met Not Met  Exceeded: 29% Met: 57% Not Met: 14%	**Maintain Assessment Strategy** Maintain Assessment Strategy

	Met Total: 86% Not Met Total: 14% **Summary** Presentation grade for the Fall 2024 Math 3234 final project. Final project grade, Gunn-Margit & Ingunn.xlsx Final project grade, Harrell.xlsx Final project grade, Leon & Ingrid.xlsx Final project grade, Ovreas & Lunde.xlsx	