Assessment Data Mathematical, Information and Computer Sciences
Foundational Education: Mathematics (OUS)
2023-24

Learning Outcome: 1e. Quantitative Reasoning: Students will be able to solve problems that are quantitative in nature.

Components of this outcome as defined by the department:
- Students will be able to formulate a mathematical model from a verbal description of a problem.
- Students will be able to solve non-routine problems using logic and quantitative techniques.
- Students will be able to construct solutions to problems using computational techniques.

Outcome Measure: Problems placed on the final exam.
MAT1013 College Algebra
MAT1093 Basic Statistics

Note that all classes use the same learning outcomes even if the problems used to measure those outcomes are different. Because it is a life skill, all classes spend some time on financial mathematics (loans, interest and credit cards) in a manner appropriate for the skill level of the students in the class.

Criteria for Success: Average score of 2.5 or higher for each problem. Note since the class sizes are small this data comes from assessing all students. It is anticipated that as the courses grow, the data will come from a random sample of the students in each section of each course.

Scale Used:
0   Unsatisfactory - Completely Incorrect
1   Low Satisfactory - Missed more than one key concept or step
2   Satisfactory - Missed one key concept or step
3   High Satisfactory - Made a minor error
4   Outstanding - Completely correct

Longitudinal Data:

		Students will be able to formulate a mathematical model from a verbal description of a problem.	Students will be able it solve non-routine problems using logic and quantitative techniques.	Students will be able to construct solutions to problems using computational techniques.
MAT1013	Fall 2023	2.33	3.23	2.77
MAT1093	Spring 2023	3.00	1.00	2.00
MAT1093	Spring 2024	2.88	2.06	2.13

Conclusions Drawn from Data: In all three cases the sample sizes for these classes were very small which leads to a large standard deviation in the results. The MAT1013 was larger, and they came close to meeting out benchmarks. The MAT1093 class in the spring of 2023 had only two students complete the final exam, so it is hard to interpret that data. The MAT1093 class from spring of 2024 was large and came close to meeting the benchmarks.

Changes to be Made Based on Data: Continue to watch the data and look for trends.

Rubric Used

General Education Mathematics Rubric

	Unsatisfactory (0)	Low Satisfactory (1)	Satisfactory (2)	High Satisfactory (3)	Outstanding (4)
Students will be able to formulate a mathematical model from a verbal description of a problem.	Completely incorrect	Missed more than one key step or concept	Missed one key step or concept	Made a minor error	Completely correct
Students will be able to solve non-routine problems using logic and quantitative techniques.	Completely incorrect	Missed more than one key step or concept	Missed one key step or concept	Made a minor error	Completely correct
Students will be able to construct solutions to problems using computational techniques.	Completely incorrect	Missed more than one key step or concept	Missed one key step or concept	Made a minor error	Completely correct

Calculus (MTH1044, MTH1064 and MTH1073)
- Interest
- Max/min
- Complex derivative

Problem Solving (MTH3003)
- Compound interest
- Scheduling
- Interest