Mathematical Problem Solving Rubric

Current trends in education show the ever increasing importance of problem-solving skills in a fast-paced and data driven world. Students should possess the ability to draw information from various data sources and apply quantitative and mathematical skills to formulate problems and draw conclusions. Thus, students need formidable quantitative literacy to be more productive in the workforce and in managing everyday life situations.

Mathematical Problem Solving Student Learning Objectives:

- **MPS1** Students will demonstrate the ability to gather and interpret quantitative data to identify or formulate a problem.
- **MPS2** Students will demonstrate the ability to identify and evaluate key variables in a mathematical model, formula, or equation and apply the results to relevance in the real world.
- **MPS3** Students will demonstrate the ability to use statistical data to judge the soundness and accuracy of conclusions derived from quantitative data.

Mathematical Problem Solving	**Area of Opportunity**		**Proficient**		**SLO Reporting**	
	Ineffective (1)	**Adequate (2)**	**Effective (3)**	**Exemplar (4)**	**Number of Students Assessed**	**Number of Students w/ Successfully Demonstrated Competency**
MPS1 Students will demonstrate the ability to gather and interpret quantitative data to identify or formulate a problem.	Formulation of the problem is incorrect or missing; work contains no correct steps towards the solution and/or statement of the problem.	Formulation of the problem is limited; work draws from the original information and contains at least one correct step towards the solution and/or statement of the problem.	Formulation of the problem is adequate; work applies original information and contains multiple correct steps towards the solution and/or statement of the problem.	Formulation of the problem is comprehensive and placed appropriately in a quantitative context; work connects the given information with a correct solution and/or effective statement of the problem showing mastery of mathematical and logical reasoning.		
MPS2 Students will demonstrate the ability to identify and evaluate key variables in a mathematical model, formula, or equation and apply the results to relevance in the real world.	Evaluation of results is missing or incomplete; incorrect conclusions are made of the results and are not relevant to the model, formula, or equation.	Evaluation of the results is present and partially correct; incorrect conclusions are made of the results about the accuracy and relevancy to the model, formula, or equation.	Evaluation of the results is present and correct; several correct conclusions are made that provide some accuracy and relevancy to the model, formula, or equation but may still lack proper language or reasoning.	Evaluation of the results is present and correct; conclusions are made that provide proper language, methods, and support as it applies to the relevancy to the model, formula, or equation.		

MPS3 Students will demonstrate the ability to use statistical data to judge the soundness and accuracy of conclusions derived from quantitative data.	Explanation of the context is missing or incorrect; inappropriate or inadequate explanation of the results obtained from the quantitative data analysis.	Explanation of the context is somewhat incorrect; contains some correct language but statements are not supported or do not follow logically with the results obtained from the quantitative data analysis.	Explanation of the context is mostly correct; uses given data correctly and explanation of the results obtained from the quantitative data analysis is accurate but still contains missing components or incorrect terminology.	Explanation of the context is comprehensive and precise; uses specific data references and proper terminology in the explanation of the results obtained from the quantitative data analysis.		