# Cal Poly Quantitative Reasoning Rubric

*"Quantitative reasoning is the ability to make (or critique) a persuasive argument about a real-world or discipline-specific problem based on numerical evidence."*

| Dimension | 1- Limited Proficiency | 2 - Emerging Proficiency | 3 - Proficiency | 4 - High Proficiency |
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| **Problem Identification** <br> *Understands or describes a problem based on numerical evidence when presented with one, or defines a problem on one's own, while recognizing the underlying assumptions and the limitations they may place on the problem.* | Inaccurately describes or defines the problem; does not recognize or describe the assumptions being made about the problem. | Somewhat accurately describes or defines the problem; may recognize but only somewhat effectively describes the assumptions being made about the problem. | Accurately describes or defines the problem; recognizes and effectively describes the assumptions being made about the problem, but does not explain how/why those assumptions place limitations on the problem. | Accurately describes or defines the problem and complexifies it; recognizes and effectively describes the assumptions being made about the problem; adeptly explains how/why those assumptions place limitations on the problem. |
| **Quantitative Analysis** <br> *Uses mathematical/statistical tools to organize and investigate numerical evidence. Calculates solutions from which inferences can be drawn.* | Does not use the appropriate mathematical/statistical tool(s) to organize and investigate numerical evidence; makes significant errors when calculating solutions. | Sometimes uses the appropriate mathematical/statistical tool(s) to organize and investigate numerical evidence; makes a few errors when calculating solutions. | Consistently uses the appropriate mathematical/statistical tool(s) to organize and investigate numerical evidence; correctly calculates solutions. | Precisely uses the appropriate mathematical/statistical tool(s) to organize and investigate numerical evidence; clearly, concisely, and correctly calculates solutions. |
| **Visual Presentation** <br> *Expresses numerical evidence in the form of an equation, table, graph, or diagram.* | Employs an inappropriate visual format and/or inaccurately expresses numerical evidence in that format. | Employs a mostly appropriate visual format and somewhat accurately expresses numerical evidence in that format. | Employs an appropriate visual format and accurately expresses numerical evidence in that format. | Skillfully employs an appropriate visual format both to accurately express numerical evidence and further an understanding of the problem. |
| **Oral/Written Communication** <br> *Integrates numerical evidence to communicate an explanation, interpretation, or argument about a problem in oral and/or written format, depending on the goals of the assignment. Synthesizes multiple forms of numerical evidence to draw reasoned conclusions.* | Inadequately integrates numerical evidence; ineffectively synthesizes multiple forms of numerical evidence; exhibits a lack of reasoning ability to draw conclusions. | Somewhat adequately integrates numerical evidence; somewhat effectively synthesizes multiple forms of numerical evidence; exhibits some problems with reasoning to draw conclusions. | Adequately integrates numerical evidence; effectively synthesizes multiple forms of numerical evidence; exhibits sound reasoning to draw conclusions. | Adeptly integrates numerical evidence; seamlessly synthesizes multiple forms of numerical evidence; exhibits sound reasoning that acknowledges limitations to draw conclusions. |

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