### Rubric for Quantitative Reasoning

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Calculations</th>
<th>Visual Representations of Data and Information (e.g. tables and graphs)</th>
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</table>
| **4** (Advanced) | • Demonstrate a deep understanding of the quantitative problem space, including appropriate vocabulary, terminology, and notation.  
• Develop and implement a valid problem-solving strategy that leads to logically consistent correct conclusions. | • Demonstrate computational proficiency with computational methods appropriate to the quantitative problem space.  
• Results are correct and presented clearly and concisely; computational steps are logically justified. | • Visual representations (e.g. tables, graphs, schematics) of data or concepts are complete, accurate, and enlightening.  
• Visual representations are effectively utilized to make conclusions that are correct, detailed, and consistent with the visual representations. |
| **3** (Competent) | • Demonstrate a sufficient understanding of the quantitative problem space; contains minor gaps or misinterpretations.  
• Develop and implement a reasonable problem-solving strategy to make conclusions. The strategy and/or its implementation may not be optimal, may contain minor logical gaps, may lack important detail, and/or may not lead to correct conclusions. | • Computational methods are appropriate to the quantitative problem space.  
• Computations include minor mistakes; computational steps are logically justified. | • Visual representations of data or concepts are accurate, but may be incomplete and/or difficult to understand.  
• Conclusions contain minor inaccuracies or lack sufficient detail, but are generally consistent with the visual representations. |
| **2** (Emerging) | • Demonstrate only a limited understanding of the quantitative problem space; contains major gaps and/or misinterpretations.  
• The problem-solving strategy is ill-defined, inappropriate, and/or incomplete. The strategy and/or its implementation contains major logical gaps and does not lead to correct conclusions. | • Computational methods are not optimal for the quantitative problem space.  
• Computations include multiple mistakes; steps are not logically justified. | • Visual representations contain minor flaws, inaccuracies, or inconsistencies, and may be difficult to understand.  
• Conclusions contain inconsistencies with the visual representations. |
| **1** (Beginning) | • No demonstrated understanding of the quantitative problem space.  
• No demonstrated strategy; conclusions are incorrect. | • Computational methods are inappropriate for the quantitative problem space.  
• Computations include multiple mistakes; steps are not logically justified. | • Visual representations are inaccurate, imprecise, and/or inappropriate.  
• Visual representations are not used to make conclusions. |

1. Quantitative Reasoning covers a wide range of competency across different majors/programs. The rubrics above should be interpreted as appropriate within each major/program.
2. This column represents critical thinking as an imbedded aspect of Quantitative Reasoning.
3. Problem-solving is used here in the broadest sense and should not be confused with symbolic mathematical problem solving.