**Quantitative Reasoning Rubric – Roanoke College Aug 2014**

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| **TRAITS** | **Rating = 0** | **Below Basic, Rating = 1** | **Basic, Rating = 2** | **Proficient, Rating = 3** | **Advanced, Rating = 4** |
| *Gather or Select* | Assignment submitted but does not even attempt this trait | Student ignores or incorrectly selects controls, variables, or conditions when gathering/selecting data.  Data largely inappropriate for intended purpose. | Some of the controls and variables correctly selected but student overlooks other needed conditions or controls.  Data gathered/selected only partially useful for purpose. | Student chooses appropriate controls, variables, and conditions to gather or select data.  Data gathered/selected useful for intended purpose. | Student handles multiple variables, nuanced or especially insightful controls and conditions.  Data gathered/selected matches intended purpose precisely. |
| *Represent* | Assignment submitted but does not even attempt this trait | Student requires detailed assistance when completing even simple tables, graphs, figures, calculations, or models. Work may still contain major errors. | Student completes routine tables, graphs, figures, calculations, or models but with some errors and/or still requiring some assistance or direction | Student completes routine tables, graphs, figures, calculations, or models correctly based upon understanding of assignment/data needs | Student completes tables, graphs, figures, calculations, or models in new applications. Independently makes choices representing data that highlight important information |
| *Interpret* | Assignment submitted but does not even attempt this trait | Student unable to identify the most important features or trends in data. Interpretations of tables, graphs, figures, calculations, or models contain multiple or serious errors. | Student able to identify the most important features and trends in simple data, tables, graphs, figures, calculations, or models with some errors | Student able to identify the most important features or trends in data encountered in familiar situations. Accurately interprets familiar types of tables, graphs, figures, or models. | Student able to identify nuanced features or trends in data, tables, graphs, figures, or models. Able to interpret information in new or unfamiliar applications |
| *Use in Decision Making* | Assignment submitted but does not even attempt this trait | Student applies quantitative information to draw only the most basic conclusions or in the simplest decision making | Student applies quantitative information to make decisions or draw conclusions. May still make some errors or have some trouble explaining connections between data and conclusions | Student applies quantitative information to make decisions or draw conclusions. Is able to explain how the quantitative evidence supports conclusions. | Student applies quantitative information to draw more nuanced conclusions. Is able to articulate how quantitative evidence supports conclusions expertly and articulately |
| *Handle Uncertainty or Significance* | Assignment submitted but does not even attempt this trait | Student attempts to apply standard deviation, error bars, or similar measures of uncertainty but makes significant errors. Interpretation may be missing or contain significant misunderstandings. | Student able to apply standard deviation, error bars, or similar measures of uncertainty. This application and/or its interpretation still contain some errors. | Student able to apply and interpret measures of uncertainty, error, and/or statistical significance accurately. Student able to provide accurate explanations related to uncertainty and/or statistical significance. | Student applies and interprets measures of uncertainty, error, and/or statistical significance expertly. Demonstrates ability to make nuanced judgments. Argues effectively for a best interpretation using these measures. |