## Quantitative Skills Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRAIT</strong></td>
<td>Unacceptable</td>
<td>Acceptable</td>
<td>Exemplary</td>
</tr>
</tbody>
</table>
| **Design** | - Research question and statements of hypotheses or problem vaguely stated or unstated  
- Research design or model contains deficiencies or is not provided  
- Does not develop indicators or develops invalid measures  
- Sampling universe is either marginally appropriate or inappropriate  
- Design deficiencies in some areas are not offset by superior efforts elsewhere | - Implicitly identifies research question and states hypotheses or problem  
- Research design adequate for testing at least one of the hypotheses or modeling the problem/decision  
- Develops at least one indicator that is a moderately valid measure  
- Generally identifies the sampling universe (target population)  
- Deficiencies in designing one or two elements are offset by superior efforts elsewhere | - Explicitly identifies research question and states hypotheses or problem  
- Directly tests hypotheses or models problem with superior research design  
- Develops indicators that are valid measures of concepts  
- Correctly identifies the sampling universe (target population) |
| **Analysis** | - Fundamental errors or omissions in identifying the sample or data set  
- Misapplies the analysis or uses the wrong method or test; fails to report at least two major steps  
- Presents confusing results with incomplete tables or no results at all | - Selects appropriate sample or data set  
- Statistical methods or quant modeling techniques acceptable, but at least one major step not reported or ignored  
- Results generally identified and reported, although with minimal labeling or other omission | - Selects appropriate sample or data set  
- Identifies and correctly uses statistical methods to test hypothesis or other quant methods to model the problem  
- Clearly presents the results in labeled and identified tables, charts, or graphs |
| **Interpretation** | - Misidentifies or misreports much of the relevant information (e.g., assumptions, null and research hypotheses, sampling distributions, test statistics, functional forms)  
- Incorrectly reports the results  
- Little or no discussion and interpretation of the patterns inherent in the analysis | - Identifies and reports most of the relevant information (e.g., assumptions, null and research hypotheses, sampling distributions, test statistics, functional forms)  
- Correctly reports results (e.g., hypothesis tests, interval estimates, optimization solutions)  
- Little or no discussion and interpretation of the patterns inherent in the analysis | - Identifies and reports all the relevant information (e.g., assumptions, null and research hypotheses, sampling distributions, test statistics, functional forms)  
- Correctly reports results (e.g., hypothesis tests, interval estimates, optimization solutions)  
- Accurately and creatively interprets the patterns inherent in the analysis |
# Quantitative Skills Worksheet

**Overall Score_____________ (Score Range: 3-9)**

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Course:</th>
<th>Assignment:</th>
<th>Date:</th>
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<tbody>
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<tr>
<th>If applicable, score the element (1-3)</th>
<th>Element of Quantitative Reasoning</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design:</strong> Does the student explicitly identify the research question and states hypotheses or the problem being quantitatively modeled? Does he or she directly test the hypotheses or model the problem with superior research design? Are the developed indicators valid measures of the theoretical concepts? Was the sampling universe (target population) correctly identified?</td>
<td></td>
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</tr>
<tr>
<td><strong>Analysis:</strong> Was the appropriate sample or data set selected? Did the student identify and correctly use statistical methods to test hypothesis or for non-statistical problems identify an appropriate quantitative method to model the problem or decision? Were the results clearly presented and thoroughly labeled in appropriate tables, charts, or graphs?</td>
<td></td>
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<tr>
<td><strong>Interpretation:</strong> Was all the relevant information identified and reported (e.g., assumptions, null and research hypotheses, sampling distributions, test statistics, functional forms)? Were all the results correctly reported (e.g., hypothesis tests, interval estimates, optimization solutions)? Were the patterns inherent in the analysis accurately reported and creatively interpreted?</td>
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