

QI, Quantitative Inquiry

QI Faculty Evaluator: _____

Student Sample #: _____

Title of Essay, Exam or Sample Being Evaluated: _____

Quantitative Inquiry (QI) - Students use quantitative methods to help analyze problems in particular academic or social contexts; develop in-depth arguments supported by quantitative evidence; and communicate those arguments in both verbal form and quantitative displays (e.g., tables, graphs, mathematical equations, or other relevant format).

Outcome Statement: Students will be able to create sophisticated arguments supported by quantitative evidence, to reason and to solve problems from a wide array of authentic contexts and everyday life situations, and to clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

	4 (exceptional)	3 (competent)	2 (minimally acceptable)	1 (unsatisfactory)	Not Evident
Interpretation <i>Ability to interpret information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words, algorithms)</i>	Provides accurate interpretations of information presented in mathematical forms. Makes appropriate inferences based on that information. <i>For example, accurately interprets the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.</i>	Provides accurate interpretations of information presented in mathematical forms. <i>For instance, accurately interprets the trend data shown in a graph.</i>	Provides somewhat accurate interpretations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. <i>For instance, accurately interprets trend data shown in a graph, but may misinterpret the slope of the trend line.</i>	Attempts to interpret information presented in mathematical forms, but draws incorrect conclusions about what the information means. <i>For example, attempts to interpret the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.</i>	Assignment shows no evidence of interpretation
Representation <i>Ability to convert relevant information into various quantitative forms (e.g., equations, graphs, diagrams, tables, words, algorithms)</i>	Skillfully converts relevant information into an insightful quantitative portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired quantitative portrayal.	Completes conversion of information but resulting quantitative portrayal is mostly appropriate or accurate.	Completes conversion of information but resulting quantitative portrayal is inappropriate or inaccurate.	Assignment shows no evidence of representation
Calculation <i>Ability to perform numerical and/or symbolic operations relevant to the field of study</i>	Calculations attempted are essentially all successful and sufficiently comprehensive to investigate or solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to investigate or solve the problem.	Calculations attempted are mostly successful or represent a portion of the calculations required to comprehensively investigate or solve the problem.	Calculations are attempted but are both unsuccessful and are not comprehensive.	Assignment shows no evidence of calculation
Analysis <i>Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis</i>	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for conclusions unsupported by the data.	Assignment shows no evidence of analysis
Theorization <i>Ability to make and evaluate important hypotheses in estimation, modeling, and data analysis</i>	Explicitly describes hypotheses and provides compelling rationale for why each hypothesis is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the hypotheses.	Explicitly describes hypotheses and provides compelling rationale for why hypotheses are appropriate.	States hypotheses without providing rationale.	Attempts to describe hypotheses.	Assignment shows no evidence of theorization
Communication <i>Ability to express quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)</i>	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)	Assignment shows no evidence of communication