

Quantitative Reasoning

	Capstone 4	Milestones		1
		3	2	
Calculation	All calculations are successful and sufficiently comprehensive to solve the problem and shown work is presented clearly and accurately.	Calculations are mostly successful and sufficiently comprehensive to solve the problem. Work is not necessarily presented.	Calculations are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.	Calculations are both unsuccessful and are not comprehensive.
Representation <i>To math – The ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables)</i>	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and accurate mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.
Interpretation/Description <i>From math – The ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)</i>	Provides thorough, accurate descriptions of information presented in mathematical forms and uses numerical information skillfully in the descriptions.	Provides accurate descriptions of information presented in mathematical forms. If numerical information is used in the description, it is accurate but not skillfully integrated.	Provides some accurate descriptions of information presented in mathematical forms, but occasionally makes minor errors (e.g. computations, units) or is vague.	Attempts to describe information presented in mathematical forms, but draws incorrect statements about what the information means.
Judgments/Conclusions <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 somewhat 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. No attempt to qualify the conclusions or minor errors exist in the conclusions.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work. Or conclusions are not appropriate or are incorrect to the given data.
Applies content knowledge, methods and/or results to new situations	Makes accurate and comprehensive conclusions about a new situation using information previously learned in another context	Makes accurate conclusions about a new situation using information previously learned in another context.	Applies previously learned information to a new situation but makes some inaccurate conclusions.	Attempts to apply previously learned information to a new situation but makes inaccurate conclusions.
Assumptions <i>Ability to make and evaluate important assumptions in estimation, modeling, and data analysis</i>	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.