CSUEB GENERAL EDUCATION **AREA B4 QUANTITATIVE REASONING RUBRIC**

Description: Proficiency in quantitative reasoning at the B4 level is demonstrated by the use of interpretation, representation, calculation, and communication of quantitative information at the college level. B4 courses build upon, and add depth and sophistication to, the quantitative skills that are developed by the required high school curriculum—skills that are evaluated through CSU's Multiple Measures Protocol (see p. 3 of EO 1110 FAQs) and are used to determine whether incoming freshmen across the CSU will require additional support in their B4 courses.

Framing Language: This rubric is used to assess established signature assignments, which are aligned to the rubric. The rubric dimensions described below are sequential in nature—a student must first interpret, then represent a method/approach prior to executing/calculating. Each dimension should be evaluated independently, because a student may, for example, make an error in the interpretation and/or development steps, but then correctly execute/calculate their chosen approach. Finally, communication should be demonstrated throughout the solution process, and therefore should be the last dimension assessed.

	PERFORMANCE DESCRIPTORS BY LEVEL			
DIMENSION	**4**	**3**	**2**	**1**
Interpretation *Identifies and organizes relevant information presented in quantitative forms, in order to decide on which approach to take*	Clearly identifies and effectively organizes relevant quantitative information, resulting in a valid approach.	Adequately identifies and mostly organizes relevant quantitative information, resulting in a valid approach.	Has major errors or gaps in the identification and organization of relevant quantitative information, resulting in a flawed approach.	Does not identify and has little/no organization of relevant quantitative information, resulting in an incorrect or inappropriate approach.
Representation *Converts relevant information into various quantitative forms*	Effectively converts relevant information into the appropriate quantitative forms.	Mostly converts relevant information into the appropriate quantitative forms.	Has major errors or gaps in the conversion of relevant information into the appropriate quantitative forms.	Does not convert relevant information into the appropriate quantitative forms.
Calculation/Application *Applies and executes their selected method to solve a quantitative problem*	Accurately applies and executes their selected method to solve a quantitative problem.	Makes some minor errors in the application and execution of their selected method to solve a quantitative problem.	Makes major errors in the application and execution of their selected method to solve a quantitative problem.	Fails to apply and execute their selected method to solve a quantitative problem.
Communication *Uses quantitative information to explain, justify, and/or summarize an argument*	Effectively uses quantitative information to clearly explain, justify, and/or summarize an argument.	Adequately uses quantitative information to acceptably explain, justify, and/or summarize an argument.	Inadequately or inconsistently uses quantitative information to explain, justify, and/or summarize an argument.	Fails to use quantitative information to explain, justify, and/or summarize an argument.

Development: This rubric was developed by faculty in the Departments of Mathematics and Statistics & Biostatistics on May 30, 2019.