Montgomery College General Education Assessment Rubric: Quantitative Reasoning

Quantitative Reasoning includes the ability to interpret and represent data; perform mathematical calculations and carry out an analysis with clear assumptions; and finally communicate results appropriately (AAC&U).

Standard 1: Interpretation - The student is able to mathematically interpret information (e.g., equations, graphs, diagrams, tables, words).				
Advanced (3)	**Proficient (2)**	**Novice (1)**	**Not Evident (0)**	**Not Applicable**
□ Makes no errors in explanation and inferences based on information in mathematical forms	□ Makes minimal errors and/or omissions with no significant impact on explanation and inferences based on information in mathematical forms	□ Makes frequent errors that impact the clarity of the explanation and inferences based on information in mathematical forms	□ Provides inaccurate explanations and/or inappropriate inferences based on information presented in mathematical forms	□ Assessment task does not reflect these characteristics for student performance

Standard 2: Representation - The student is able to mathematically represent information (e.g., equations, graphs, diagrams, tables, words).				
Advanced (3)	**Proficient (2)**	**Novice (1)**	**Not Evident (0)**	**Not Applicable**
□ Makes no errors or omissions in the conversion of relevant information into a mathematical portrayal in a way that contributes to a further and deeper understanding	□ Makes minimal errors and/or omissions but adequately converts relevant information into a mathematical portrayal	□ Makes frequent errors and/or omissions in the conversion of relevant information into a mathematical portrayal	□ Inaccurately converts relevant information into a mathematical portrayal	□ Assessment task does not reflect these characteristics for student performance

Standard 3: Calculation - The student is able to perform mathematical calculations.				
Advanced (3)	**Proficient (2)**	**Novice (1)**	**Not Evident (0)**	**Not Applicable**
□ Makes no errors performing calculations in a clear and concise manner to comprehensively solves the problem	□ Makes minimal errors performing calculations but sufficiently and comprehensively solves the problem	□ Makes frequent errors performing calculations and partially solves the problem	□ Performs inaccurate calculations which are insufficient and do not solve the problem	□ Assessment task does not reflect these characteristics for student performance

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Standard 4: Analysis - The student is able to draw a conclusion based on the analysis of data.				
Advanced (3)	**Proficient (2)**	**Novice (1)**	**Not Evident (0)**	**Not Applicable**
□ Uses correct and complete quantitative analysis □ Makes relevant and correct conclusions	□ Attempts quantitative analysis but makes minor errors □ Makes mostly relevant and correct conclusions	□ Attempts quantitative analysis but makes major errors □ Makes minimally relevant and correct conclusions	□ Uses incorrect and incomplete quantitative analysis □ Makes irrelevant and incorrect conclusions	□ Assessment task does not reflect these characteristics for student performance

Standard 5: Assumptions - The student is able to make and evaluate any necessary assumptions.				
Advanced (3)	**Proficient (2)**	**Novice (1)**	**Not Evident (0)**	**Not Applicable**
□ Explicitly describes assumptions and provides rationale for why each assumption is appropriate □ Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions	□ Adequately describes assumptions and provides rationale for why each assumption is appropriate □ Mostly shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions	□ Vaguely describes assumptions and provides rationale for why each assumption is appropriate □ Shows minimal awareness that confidence in final conclusions is limited by the accuracy of the assumptions	□ Does not describe assumptions and provide rationale for why each assumption is appropriate □ Does not show awareness that confidence in final conclusions is limited by the accuracy of the assumptions	□ Assessment task does not reflect these characteristics for student performance

Standard 6: Communication - The student is able to communicate results appropriately.				
Advanced (3)	**Proficient (2)**	**Novice (1)**	**Not Evident (0)**	**Not Applicable**
□ Uses quantitative information in connection with the argument or purpose of the work □ Presents work in an effective format using high quality details	□ Mostly uses quantitative information in connection with the argument or purpose of the work □ Mostly presents work in an effective format using adequate details	□ Rarely uses quantitative information in connection with the argument or purpose of the work □ Vaguely presents work using mostly substandard details	□ Does not use quantitative information in connection with the argument or purpose of the work □ Presents work in an ineffective format without details	□ Assessment task does not reflect these characteristics for student performance