Coursework in this area is intended to develop an understanding of mathematical reasoning processes and the ability to utilize these processes to solve college-level mathematical problems.

**Competency and Knowledge Objectives**

To meet the mathematics requirement of the general education core, courses must cover the competency/knowledge objectives below.

1. Interpret mathematical concepts.
2. Represent information/data.
3. Use appropriate strategies/procedures when solving mathematical problems.
4. Draw reasonable conclusions based on quantitative information.

**Value Rubric: Mathematical Ways of Knowing**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Meets End-of-Course Expectations** | **Partially Meets**  **End-of-Course Expectations** | **Does Not Meet End-of-Course Expectations** |
| **COMPETENCY 1:**  **Interpret mathematical concepts.**    *Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, notation/mathematical symbols, words)* | Provides accurate explanations of information presented in mathematical forms.  For example,   * uses appropriate mathematical language to explain course concepts consistently * or completely explains mathematical notation or abstractions related to course material | Provides foundational but incomplete explanations of information presented in mathematical forms.  For example,   * uses appropriate mathematical language to explain course concepts inconsistently * or partially explains mathematical notation or abstractions related to course material | Provides inaccurate explanations of information presented in mathematical forms or provides no explanation.  For example,   * uses inappropriate mathematical language to explain course concepts * or inaccurately explains mathematical notation or abstractions related to course material |
| **COMPETENCY 2:**  **Represent information/data.**  *Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)* | Competently converts relevant information into an appropriate and desired mathematical portrayal.  For example,   * Appropriately represents data with a table or graph, such as a line graph, bar graph, circle graph, boxplot, scatterplot, or frequency distribution, etc. * Or appropriately represents information with a function, equation, inequality, graph, table, drawing, diagram, words, etc. | Partially converts relevant information into an appropriate and desired mathematical portrayal.  For example,   * Partially represents data with a table or graph, such as a line graph, bar graph, circle graph, boxplot, scatterplot, or frequency distribution, etc. * Or partially represents information with a function, equation, inequality, graph, table, drawing, diagram, words, etc. | Inappropriately converts relevant information into an appropriate and desired mathematical portrayal.  For example,   * Inappropriately represents data graphically with a table or graph, such as a line graph, bar graph, circle graph, boxplot, scatterplot, or frequency distribution, etc. * Or inappropriately represents information with a function, equation, inequality, graph, table, drawing, diagram, words, etc. |
| **COMPETENCY 3:**  **Use appropriate strategies/procedures when solving mathematical problems.**  *Ability to approach a problem in an appropriate and comprehensive way* | Calculations attempted are appropriate and sufficiently comprehensive to solve the problem.  For example,   * Applies an appropriate strategy or technique that is sufficient to solve the problem. * Performs a process that is adequate to solve the problem. | Calculations attempted are appropriate but are insufficient to solve the problem.  For example,   * Partially applies an appropriate strategy or technique that is sufficient to solve the problem. * Partially performs a process that is adequate to solve the problem. | Calculations attempted are inappropriate and insufficient to solve the problem.  For example,   * Applies an inappropriate strategy or technique to solve the problem. * Performs a process that is inadequate to solve the problem. |
| **COMPETENCY 4:**  **Draw reasonable conclusions based on quantitative information.**  *Ability to evaluate the reasonableness of the conclusion or result for a real-world mathematical problem* | Successfully evaluates the reasonableness of the result for a real-world mathematical problem.  For example,   * Demonstrates that the conclusion correctly addresses the problem. * Draws valid conclusions from analysis. * Or adequately checks the solution to confirm that it is reasonable. | Partially evaluates the reasonableness of the result for a real-world mathematical problem.  For example,   * Partially demonstrates that the conclusion correctly addresses the problem. * Draws partially valid conclusions from analysis. * Or inadequately checks the solution to confirm that it is reasonable. | Does not evaluate the reasonableness of the result for a real-world mathematical problem.  For example,   * Does not demonstrate that the conclusion correctly addresses the problem. * Does not draw valid conclusions from analysis. * Or does not check the solution to confirm that it is reasonable. |