

## General Education Curriculum: Quantitative Experience (QE) Rubric

The Quantitative Experience (QE) rubric was developed through faculty and student consultation with members of the General Education Oversight Committee at Wayne State University (WSU). The rubric was modeled after VALUE rubrics created by the Association of American Colleges and Universities (AAC&U). The rubric articulates fundamental criteria for each learning outcome required for QE under the General Education program. It contains performance descriptors demonstrating progressively higher levels of learnedness. The rubric is intended for institutional-level use in evaluating and discussing student learning within the General Education curriculum, not for grading.

QE is a Foundational Competency requirement of the General Education program at WSU. The overall goal of the foundational competencies courses is “to provide students with the fundamental skills that are the basis for success in college and in their future careers” (see [Academic Bulletin](#)).

QE has [four program learning outcomes](#). After successful completion of the QE requirement, students will be able to demonstrate their ability to:

- (1) Apply mathematical models to real-world problems.
- (2) Carry out and justify calculations.
- (3) Draw conclusions based on quantitative evidence.
- (4) Communicate arguments supported by quantitative evidence.

### Glossary for Terms and Concepts used in the Rubric

*The definitions that follow were developed to clarify terms and concepts used in this rubric only.*

- Communicate: Express in oral, written, or graphic form.
- Real-world problem: A set of challenges commonly dealt with in professional and personal settings.
- Quantitative evidence: Evidence from information or data such as numerical, statistical information, algebraic, graphs, figures, and so on
- Mathematical form: Modes of representing quantitative information (e.g., equations, graphs, diagrams, table, words).
- Calculations: Determine something through mathematical methods (e.g., inequalities, addition, subtraction, multiplication, percentages, ratios, pre-algebra, algebra).

### How to Use the Rubric

- Faculty teaching QE courses select one or more assignments that elicit the QE learning outcomes.
- Faculty use the rubric to score their students' work on the 4-point rubric scale.
  - Details for reporting the results for course(s) are provided on the GEOC website.

## Quantitative Experience Rubric

<b>Learning Outcome</b>	<b>(High) Skillfully Converts</b>	<b>(Moderate) Converts</b>	<b>(Low) Identifies</b>	<b>(No) Little to No Evidence</b>
LO1: Apply mathematical models to real-world problems.	With high degree of accuracy, identifies relevant real-world relationships between information and converts into mathematical form.	With some noticeable errors, identifies relationships between relevant real-world information and converts them into mathematical form.	Identifies relationships between relevant real-world information and mathematical forms but does not convert them into mathematical form.	Demonstrates little to no relationship between relevant real-world information and mathematical forms.
<b>Learning Outcome</b>	<b>Comprehensively Calculates</b>	<b>Calculates</b>	<b>Identifies</b>	<b>Little to No Evidence</b>
LO2: Carry out and justify calculations.	Calculations are correct, and clearly explained, and comprehensively solve the problem. Correctly performs multistep calculations that utilize different operations.	Calculations are mostly correct and explained. Performs, with minor errors, multistep calculations that utilize different operations.	Relevant calculation methods are correctly identified but executed with noticeable errors. Performs varied operations but few or no multistep calculations.	Relevant calculations are absent or mostly incorrect. Performs little to no variation in types of operations Does not perform multistep calculations.
<b>Learning Outcome</b>	<b>Accurately Draws</b>	<b>Draws</b>	<b>Identifies</b>	<b>Little to No Evidence</b>
LO3: Draw conclusions based on quantitative evidence.	Accurately describes quantitative evidence and draws valid conclusions about the evidence.	Describes quantitative evidence and draws reasonable conclusions about the evidence with some errors.	Describes quantitative evidence but without drawing reasonable conclusions about the evidence.	Little to no evidence of reasonable conclusions drawn from quantitative evidence.
<b>Learning Outcome</b>	<b>Effectively Communicates</b>	<b>Relates</b>	<b>Identifies</b>	<b>Little to No Evidence</b>
LO4: Communicate arguments supported by quantitative evidence.	Accurately communicates quantitative information in support of argument(s).	Uses quantitative information to support argument(s) but with some errors or significant omissions.	Demonstrates knowledge of quantitative information but does not effectively connect it to the argument(s).	Provides little to no quantitative support for argument(s).

Source: Appropriated and modified from the VALUE rubrics developed by the Association of American Colleges and Universities (AAC&U) for “Interpretation”, “Representation”, “Calculation”, “Application/Analysis”, and “Communication”.

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