



UW System Math Initiative
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University of Wisconsin System Math Initiative

Gateway Quantitative Reasoning

Course description:

This course is designed to teach students mathematical skills needed for informed decision making. Its emphasis is on mathematical reasoning and its practical application in a variety of contexts.

Quantitative Reasoning develops a habit of mind, competency, and comfort in working with numerical data. Students will learn to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations, develop the ability to reason mathematically, and make and evaluate logical arguments supported by quantitative evidence.

Learning outcomes:

1. Identify appropriate models to fit scenarios described with numerical data and/or verbal descriptions, make predictions and draw conclusions in real-world contexts using a model, and recognize the limitations of mathematical models in those contexts.
2. Understand, interpret, and construct expressions and equations in various contexts.
3. Understand and be able to create and evaluate arguments supported by quantitative evidence and clearly communicate those arguments using words, tables, graphs, mathematical equations, etc., as appropriate.
4. Compare and contrast linear and exponential models in practical problems.
5. Construct and interpret graphical displays of data and understand how they can be used and misused.
6. Use measures and techniques from descriptive statistics and probability in decision-making contexts.
7. Apply proportional reasoning in a variety of sophisticated contexts.
8. Demonstrate number sense via estimation, comparisons, magnitude, and attention to appropriate accuracy in all of the above.

Guidelines for Quantitative Reasoning:

1. The course is a first credit bearing, college mathematics course that provides greater breadth, depth or application of mathematical knowledge, skills and abilities required in State of Wisconsin-approved high school mathematics curriculum.
2. The course may be terminal for students who do not require further math for their majors.

3. The core learning outcomes (LO) were vetted by math faculty systemwide in spring 2018 and serve as a mechanism to ensure consistency for purposes of transfer and applicability of gateway mathematics courses across the UW System. Individual institutions and faculty will continue to enjoy the freedom to utilize the modality and instructional strategies they deem most appropriate for the delivery of these courses.
4. The core learning outcomes typically reflect the content of a three- to four-credit course. The intent of the learning outcomes is that if a student successfully completes this course at one UW institution and transfers the course to another, the receiving institution will accept this course, regardless of the number of credits being transferred, as meeting an existing mathematics-related graduation requirement, unless a student's choice of degree or academic program requires another specific mathematics course(s).
5. The Math Steering Committee will develop a process to periodically review and update the gateway course descriptions and LO that honors the autonomy of each department and continues to support the intent of the Math Initiative.

9.20.18