

Assessment Report
Quantitative Reasoning (MATH 1313)
2019-20

The vision of the University of Arkansas Mathematical Sciences Department is to empower students to become mathematically proficient self-directed learners that will enable them to use quantitative reasoning and critical thinking skills to solve personal and societal problems. The mathematics core courses were designed with the following goals in mind:

1. Cultivate an appreciation of mathematical concepts and processes as powerful tools with broad applications in a societal and technological context.
2. Develop a recognition of mathematics as an abstract formal system that reflects and describes the physical world.
3. Enable students to solve problems and understand the world using quantitative and critical thinking skills.

Upon completion of three hours of mathematics courses, students will be able to:

- (MATH LO1) Demonstrate an understanding of college-level mathematical concepts and tools.
- (MATH LO2) Demonstrate fluency with the language and notation of mathematics.
- (MATH LO3) Formulate and solve a problem in mathematical terms, using appropriate tools and methods.
- (MATH LO4) Formulate decisions and solutions based on critically thinking, reasoning and analysis.
- (MATH LO5) Develop models to solve real-life problems.
- (MATH LO6) Express quantitative and logical ideas with precision.

Assessment of Student Learning Outcomes

Assessment in MATH 1313 and consists of a sample of questions from the Final Exam, which is uniform for all sections of the course.

MATH 1313 Final Exam question themes are included below keyed to learning outcomes.

1. Understand how to work with units and perform unit conversions. (LO1; LO6)
2. Work with percentages in real-world contexts (LO2; LO3)
3. Solve problems relating to the value of money over time. (LO4; LO5; LO6)
4. Represent data in various forms. (LO2;LO6)
5. Understand uncertainty in real-world statistical sampling. (LO1; LO2; LO3; LO4)

Analysis of student performance is based on overall performance on course exams samples. Approximately 140 students were assessed.

Question	Learning objective(s)	correct %
1	LO1, LO6	89
2	LO2, LO3	84
3	LO4, LO5, LO6	78
4	LO2, LO6	99
5	LO1, LO2, LO3, LO4	51