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Assessing a mathematical inquiry course: Do students gain an appreciation for mathematics?
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Summary: This study evaluates changes in students' performance and appreciation for mathematics as the result of taking a required general education course designed for calculus-ready students. The purpose of the study is to determine whether the goals of this rigorous general education course are being met. Changes in students' performance are measured by comparing grades on a pre-course and a post-course test. Changes in students' appreciation of mathematics are measured by scores on a pre-course and post-course survey, including open-ended questions concerning beliefs about mathematics. The study reveals a significant increase in grades on the post-course test, indicating gains in students' performance. It also reveals a significant increase in scores concerning creativeness, indicating a greater appreciation for the creativity involved in doing mathematics. The study reveals a significant decrease in scores on questions concerning attitudes, indicating a decrease in students' feelings about mathematics as it relates to them personally. The open-ended responses show an increase in students' appreciation for proofs and for the role of mathematics in the world. This report concludes with a discussion of some of the perceived benefits and challenges of including a rigorous, non-calculus mathematics course in the general education requirements for calculus-ready students.

Classification: C75 C25

Keywords: quantitative literacy; general education mathematics courses; mathematical inquiry; student attitudes; student beliefs; assessment

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