# MATH112R : Mathematical Investigations: Great Ideas in Mathematics

Mathematical Investigations is an introduction to various branches of mathematics, including number theory, functions and modeling, geometry, and probability and statistics. The course will focus on some of the most interesting ideas in the history of mathematics and various applications, including the infinitude of the primes, the non-denumerability of the real numbers, different sizes of infinity, golden rectangles, non-Euclidean geometry, and measuring risk. Students will complete research projects in areas such as cryptography, platonic solids, topology, chaos and fractals, and different voting methods. The course emphasizes mathematical thinking, habits of the mind, and problem solving. These strategies will allow you to apply mathematics to real-life situations. Along the way, you will confront issues that challenge your intuition and even experience mathematical questions that have remained unsolved for hundreds of years. The course is student centered and focuses on activitybased instruction that integrates technology.

**Credits** 4
**Lab Hours** 3
**Lecture Hours** 3