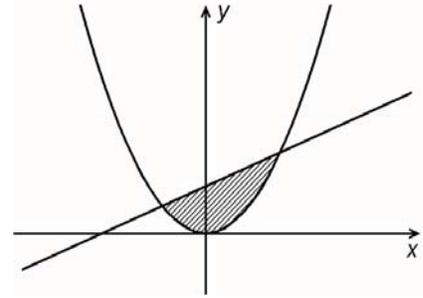


**MATHEMATICS 1001**  
**CALCULUS II**

What is the area of the region bounded by the parabola and the line in the diagram? Can you imagine the shape of the solid that would be formed by rotating this region about the  $x$ -axis? What is the volume of this solid?

These questions can be answered with the mathematical tool called integration, the subject of the integral calculus. While the invention of calculus is generally credited to Newton and Leibniz, the idea of the *integral* has its roots in the work of the mathematicians of ancient Greece. They used a technique called *the method of exhaustion* to calculate areas of regions whose sides were not straight lines by using known areas of polygons such as rectangles and triangles to approximate the unknown areas. Lest you think that the ability to calculate areas and volumes is of limited interest or value, it is important to know that there are many interesting problems in physics and engineering that depend upon exactly the same concepts as those used in calculating areas.



Mathematics 1001 is a course in integral calculus. It is required for entry into engineering, pharmacy, and most science programs.

**Text.** Varies. Consult instructor before purchasing. *Mathematics 1000, 1001 Course Notes* by Bruce Watson is available in the general office, HH 3003.

**Marks.** While the exact formula may vary from semester to semester, it is typical to assign 60% of the final grade to a final examination, 30% to two tests, and 10% for weekly assignments.

**Calendar description:** **1001 Calculus II** is an introduction to integral calculus, including Riemann sums, techniques of integration and improper integrals. Applications include exponential growth and decay, areas between curves and volumes of solids of revolution.  
PR: MATH 1000 or the former MATH 1081

**Offered.** Fall, Winter, Spring