

## Mathematics

Course # DMNS 1162

Credits 6

**Prerequisites and/or Corequisites:** None

### Course Description

This course is designed to teach students the principles of mathematics and how to apply those principles and concepts to solve complex problems. This course covers the computation of limits (graphically and algebraically), one-sided limits and continuity, fundamental theorem of calculus, techniques of integration, differential equations, especially first and second order differential equations, applications in marginal analysis and approximation using increments, and elasticity of demand.

### Course Learning Outcomes

Upon completion of this course, students should be able to:

- interpret a function from an algebraic, numerical, graphical and verbal perspective and extract information relevant to the phenomenon modeled by the function.
- calculate the limit of a function at a point numerically and algebraically using appropriate techniques.
- define the basic concepts and principles of differential and integral calculus of real functions.
- interpret the geometric meaning of differential and integral calculus.
- apply the concept and principles of differential and integral calculus to solve geometric and physical problems.
- identify the extrema of a function on an interval and classify them as minima, maxima or saddles using the first derivative test.
- apply basic optimization techniques to selected problems arising in various fields such as physical modeling, economics and population dynamics.

### Course Assessments and Grading

Item	Weight
Group Project	10%
Weekly Assignments (13 assignments)	10%

Item	Weight
Quizzes (4 quizzes)	15%
Mid-Term Exam	25%
Class Participation	10%
Final Exam	30%