

**The material in the highlighted Lectures is required to satisfy the pre-requisite.**

## Course Description for Ma 501

### Stevens Master of Science in Management Program

**Professor Lawrence E. Levine**  
**Department of Mathematical Sciences**  
**Stevens Institute of Technology**  
**Hoboken, NJ 07030**  
[llevine@stevens.edu](mailto:llevine@stevens.edu)

#### Ma 501 Introduction to Mathematical Analysis

This course is an introduction to the basic ideas of pre-calculus and differential calculus for those who need preparation or review before taking more advanced courses. Topics covered include the following: algebra, functions, and graphs; slopes and secant lines; derivatives; chain rule; optimization; curve sketching; the exponential and natural logarithm; business applications. This course may not be taken for credit towards a degree at Stevens.

The course syllabus is below. Typical text: **Technical Mathematics with Calculus, Fifth Edition** by Paul A. and Michael Calter, John Wiley & Sons, Inc Publishing Company.

Lecture 1	Basics, operations with real numbers, powers and roots, introduction to algebra, operations with algebraic expressions, multiplication and division of algebraic equations
Lecture 2	Multiplication and division of algebraic equations, equations, functions
Lecture 3	Graphs in rectangular coordinates, straight lines
Lecture 4	Systems of equations, factoring and fractions
Lecture 5	Operations with radicals, quadratic equations and functions, the quadratic formula
Lecture 6	Simple equations of higher degree, factor theorem, rational root theorem, complex numbers
<b>Lecture 7</b>	<b>Exponential and logarithmic functions, properties of logarithms limits and continuity</b>
<b>Lecture 8</b>	<b>Differentiation, derivatives of polynomials and rational functions, chain rule and power rule, derivatives of logarithmic and exponential functions</b>
<b>Lecture 9</b>	<b>Applications of the derivative to curve sketching and business, partial differentiation Business Applications</b>

