MATH 15900 PRECALCULUS
List of Course Topics


Chapter 1: Fundamental Concepts of Algebra
1.1 Real Numbers
1.2 Exponents and Radicals
1.3 Algebraic Expressions
1.4 Fractional Expressions

Chapter 2: Equations and Inequalities
2.1 Equations
2.2 Applied Problems
2.3 Quadratic Equations
2.4 Complex Numbers
2.5 Other Types of Equations
2.6 Inequalities
2.7 More on Inequalities

Chapter 3: Functions and Graphs
3.1 Rectangular Coordinate Systems
3.2 Graphs of Equations
3.3 Lines
3.4 Definition of Function
3.5 Graphs of Functions
3.6 Quadratic Functions
3.7 Operations on Functions

Chapter 4: Polynomial and Rational Functions
4.1 Polynomial Functions of Degree Greater Than 2
4.2 Properties of Division

Chapter 5: Exponential and Logarithmic Functions
5.1 Inverse Functions
5.2 Exponential Functions
5.3 The Natural Exponential Function
5.4 Logarithmic Functions
5.5 Properties of Logarithms
5.6 Exponential and Logarithmic Equations

Chapter 11: Topics From Analytic Geometry
11.1 Parabolas
11.2 Ellipses (omit eccentricity)
11.3 Hyperbolas

Chapter 9: Systems of Equations and Inequalities
9.1 Systems of Equations
9.2 Systems of Linear Equations in Two Variables

Chapter 6: The Trigonometric Functions
6.1 Angles
6.2 Trigonometric Functions of Angles
6.3 Trigonometric Functions of Real Numbers
6.4 Values of the Trigonometric Functions
6.5 Trigonometric Graphs
6.7 Applied Problems (omit harmonic motion problems)

Chapter 7: Analytic Trigonometry
7.1 Verifying Trigonometric Identities
7.2 Trigonometric Equations
7.3 The Addition and Subtraction Formulas
7.4 Multiple-Angle Formulas
7.6 The Inverse Trigonometric Functions (omit graphs of \( y = \cot^{-1} x, \ y = \sec^{-1} x, \ y = \csc^{-1} x \))

Chapter 8: Applications of Trigonometry
8.1 The Law of Sines
8.2 The Law of Cosines