

**Tennessee Technological University  
Mathematics Department**

**MATH 1710: Pre-Calculus I**

**I. COURSE DESCRIPTION FROM CATALOG:**

Review of algebra; relations and functions and their graphs, including polynomial and rational functions; conic sections; inequalities, arithmetic and geometric sequences and series. Lec. 3. Cr. 3.

**II. PREREQUISITE(S):**

Two years of high school algebra and one year of high school geometry.

**III. COURSE OBJECTIVES(S):**

Build on (not replicate) the competencies gained through the study of two years of high school algebra and one year of high school geometry. Use mathematics to solve problems and determine if the solutions are reasonable. Use mathematics to model real world behaviors and apply mathematical concepts to the solution of real-life problems. Make meaningful connections between mathematics and other disciplines. Use technology for mathematical reasoning and problem solving. Apply mathematical and/or basic statistical reasoning to analyze data and graphs. Refine the algebraic, geometric, and reading comprehension skills necessary in the study of calculus.

**IV. TOPICS TO BE COVERED:**

Chapter 1 **Equations and Inequalities**

1.3 Complex Numbers

Chapter 2 **Graphs and Functions**

2.1 Graphs of Equations  
2.2 Functions  
2.3 Linear Functions  
2.4 Equations of Lines; Curve Fitting  
2.5 Graphs of Basic Functions  
2.6 Graphing Techniques  
2.7 Function Operations and Composition

Chapter 3 **Polynomial and Rational Functions**

3.1 Quadratic Functions and Models  
3.2 Synthetic Division  
3.3 Zeros of Polynomials  
3.4 Polynomial Functions: Graphs, Applications and Models  
3.5 Rational Functions: Graphs, Applications, and Models

3.6 Variation - **Omit**

Chapter 4 **Exponential and Logarithmic Functions**

4.1 Inverse Functions  
4.2 Exponential Functions  
4.3 Logarithmic Functions  
4.4 Evaluating Logarithms and the Change-of-Base Theorem  
4.5 Exponential and Logarithmic Equations

Chapter 9 **Systems and Matrices**

9.4 Partial Fractions

Chapter 11 **Further Topics in Algebra**

11.1 Sequences and Series  
11.2 Arithmetic Sequences, and Series  
11.3 Geometric Sequences and Series  
11.4 The Binomial Theorem

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). 1  
An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119.

- 11.5 Mathematical Induction
- 11.6 Counting Theory - **Omit**
- 11.7 Basics of Probability – **Omit**

**V. ADDITIONAL INFORMATION:**

**VI. POSSIBLE TEXTS AND REFERENCES:**

*Precalculus*, 3<sup>rd</sup> edition Margaret L. Lial, John Hornsby and David I. Schnieder

**VII. ANY TECHNOLOGY THAT MAY BE USED:**