

## Math 1113 Precalculus

The following has been approved by ACMS as an outline that ACMS accepts for transfer credit.

This course prepares students for calculus. The topics discussed include an intensive study of algebraic, exponential, logarithmic, trigonometric functions, and their graphs. Applications include simple maximum and minimal problems, exponential growth and decay.

A. Review Topics. At most 10% of class time will be spent reviewing the following topics in order to reinforce the students' understanding of them.

1. Algebra of functions- add, subtract, multiply, divide, composition, inverse
2. Linear
3. Quadratic
4. Graphing calculator introduction

B. Uniform Requirements. Between 80% to 90% of class time will be spent covering the following topics:

For each family of functions, topics should include domain, range, graphs, to include transformations, increasing/decreasing, solving equations, applications, zeros and roots, end behavior, maximum/minimum

1. Polynomial Functions
2. Rational Functions
  - Asymptotes
  - Continuity
3. Exponential Functions
  - Inverses
4. Logarithms
  - Properties
  - Using Logarithms to solve exponential equations
5. Trigonometric Functions
  - Circular Function and Right Triangle Definitions
  - Identities
  - Sum and Difference Formulas
  - Double Angle Formulas
  - Inverse Trigonometric Functions
  - Law of Sines/Law of Cosines
  - Complex Number Representation
6. Systems of Equations/Matrices/Determinants

C. Additional Topics. Between 5% to 10% of class time will be spent covering one or more of these areas:

1. Polar Coordinates/DeMoivre's Theorem
2. Sequences and Series
3. Conic Sections

For suitable textbooks, please consult the texts spreadsheet on the ACMS website.