Course Outline

Department of Mathematics
and Statistics

Minnesota State University, Mankato

Math 115  Precalculus Mathematics  (4 semester hours)

Course Description:

This course will cover topics of precalculus mathematics. Topics covered will include functions, graphs of functions, exponential and logarithmic functions, conic sections, systems of equations and inequalities, matrices, trigonometric functions, circular functions, vectors and complex numbers, induction, series and probability.

Prerequisites: Satisfy Math Placement Table in this section, or grade of P in MATH 098.

Learning Outcomes:

Students will be able to

1. Understand the foundational material used in calculus.
2. Solve real world problems by modeling with functions.
3. Understand operations on the real and complex fields.

Course Content:

1. Linear functions
2. Graphs of functions
3. Polynomial functions
4. Inverse functions
5. Exponential and logarithmic functions
6. Conic sections and systems (equations & inequalities)
7. Matrices
8. Trigonometric functions
9. Circular functions
10. Vectors and complex numbers
11. Additional topics (induction, series, probability)

Textbook/Related Readings/Materials:

Stewart, Redlin, and Watson, Precalculus: Mathematics for calculus (6th ed.)
Cynthia Young, Precalculus
Hornsby and Lial, A Graphical Approach to College Algebra & Trigonometry
Hirsch and Goodman, College Algebra and Trigonometry
Sobel and Lerner, Algebra and Trigonometry (5th ed.)
Swokowski and Cole, Precalculus: Functions and Graphs (7th ed.)