

# Minnesota State College Southeast

## MATH 1225: Pre-Calculus

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites:

This course requires either of these prerequisite categories

1. Algebra College Level

Or

2. MATH 1025 - Algebra

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

Pre-calculus is designed to increase students' knowledge about mathematical and logical modes of thinking and will provide students the skills necessary for the successful completion of calculus. Topics include polynomials and rational functions; exponential and logarithmic functions; trigonometric functions of real numbers and angles; analytical trigonometry; polar coordinates and vectors; and sequences and series. Pre-calculus is a Minnesota Transfer Level Course. (Meets MnTC Goal 4) (Prerequisite: MATH1025 Algebra or Algebra College Level Placement) (3 credits: 3 lecture/0 lab)

**B. COURSE EFFECTIVE DATES:** 07/20/2016 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Polynomials and Rational Functions
2. Exponential Functions and Logarithmic Functions
3. Trigonometric Functions of Real Numbers & Angles
4. Analytic Trigonometry
5. Polar Coordinates and Vectors
6. Sequences and Series

### D. LEARNING OUTCOMES (General)

1. To increase students' knowledge about mathematical and logical modes of thinking
2. To enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning
3. To apply mathematics to help make decisions in lives and careers
4. To build a solid mathematical foundation for further study in many disciplines, particularly engineering, mathematics, and the sciences
5. To use mathematical concepts in interpret, understand, and document related aspects in society, technology and the world
6. To explore topics that will be applied in calculus
7. To develop an increased understanding of algebra, trigonometry, and functions to apply to higher conceptual levels
8. To demonstrate the use of mathematical tools such as vectors, matrices, and polar coordinates in modeling and solving real world problems

## **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Apply higher-order problem-solving and/or modeling strategies.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

This course was previously MATH 2525.