

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: MTH 163

Credits: 3

Course Title: Precalculus I

Course Description (including lecture hours, lab hours, total contacts)

Prepares students for applied calculus or elementary discrete mathematics. Presents college algebra, matrices, and algebraic, exponential and logarithmic functions. (Credit will not be awarded for more than one of the following: MTH 163, or MTH 166.) Lecture 3 hours per week.

General Course Purpose

Preparation for business calculus and/or statistics.

Course Prerequisites/Corequisites (*Entry-level competencies **required** for enrollment*)

Prerequisites: a placement recommendation for MTH 163 and Algebra I, Algebra II, and Geometry or equivalent.

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

- a. Describe the properties of given functions, including domain, range, increasing, decreasing, even, odd, and whether it has an inverse
- b. Sketch the graphs of polynomial, rational, exponential, and logarithmic functions
- c. Solve exponential and logarithmic equations
- d. Add, subtract, and multiply matrices and calculate the determinant of a square matrix
- e. Find the inverse of a non-singular matrix
- f. Use matrices to solve linear systems
- g. Solve linear programming problems
- h. Generate terms and find the sum of selected sequences
- i. Use summation notation
- j. Use the Binomial Theorem

Major Topics to be Included

- a. Introduction to Functions
- b. Linear and Quadratic Polynomial Function
- c. Higher Degree Polynomial Functions
- d. Rational Functions
- e. Exponential and Logarithmic Functions
- f. Matrix Algebra and Linear Programming
- g. Sequences and Series
- h. The Binomial Theorem

Effective Date of Course Content Summary (Month, Date Year): February 2009