

COLLEGE ALGEBRA — MATS 1300

A. Course Description

- **Credits:** 4.00
- **Lecture Hours/Week:** 4.00
- **Lab Hours/Week:** 0.00
- **OJT Hours/Week:** 0
- **Prerequisites:**
 - MATS 0600: Intermediate Algebra
 - MATS 0700: Algebra Emporium
 - MATS 1340: Math for Engineering Technology
- **Corequisites:** None
- **MnTC Goals:**
 - 04 – Mathematical/Logical Reasoning

Linear, quadratic, polynomial, rational, exponential, logarithmic, and other functions are carefully analyzed, with particular emphasis on graphical transformations (shifting, reflecting, stretching and compressing). Additional topics include matrices and Gaussian elimination; solving complex equations, including those in quadratic form and those that must be solved graphically; variation problems; particle motion; optimization problems; composition and inverse functions; arithmetic and geometric sequences; properties of logarithms and exponential/logarithmic equations; exponential growth and decay. MnTC Goals: Goal 04 - Mathematical/Logical Reasoning Prerequisites: MATS 0600 Intermediate Algebra

B. Course Effective Dates: 6/1/00 – Present

C. Outline of Major Content Areas

1. Exponential and Logarithmic Functions
2. Functions and Graphing
3. Methods for Solving Equations and Inequalities
4. Systems of Linear Equations

D. Learning Outcomes

1. Anticipate the form of a function based on its graph
2. Appreciate the connections between functions and various physical phenomena
3. Picture a graph in their mind based on an algebraic description of a function

4. Think through each step of a problem, refusing to hazard guesses or ?blindly follow steps? at any stage
5. Thoroughly work new information into their minds through diligent reflection and practice

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

Goal 04 — Mathematical/Logical Reasoning

1. Clearly express mathematical/logical ideas in writing.
2. Explain what constitutes a valid mathematical/logical argument(proof).
3. Apply higher-order problem-solving and/or modeling strategies.

F. Learner Outcomes Assessment

As noted on course syllabus

G. Special Information

None noted