Missouri State University
Department of Mathematics
Course Syllabus

TITLE OF THE COURSE: College Algebra

NUMBER OF THE COURSE: MTH 135

COURSE DESCRIPTION
Prerequisite: "C" grade or better in MTH 102 or MTH 103, or an approved score on a departmental placement examination. Contents include the study of linear and quadratic equations; inequalities, and their applications; polynomial, rational, exponential and logarithmic functions; and systems of equations. A student who takes MTH 135 and MTH 138 receives credit toward graduation for MTH 138 only. This course will not count toward a mathematics major or minor. Assignment to the 3(3-0) version of the course is in the summer session only. A grade of "C" or better is required in this course to take MTH 181, MTH 285, MTH 287. This course may not be taken pass/not pass.

PHILOSOPHY OF THE COURSE
It is designed as a broad comprehensive overview of college algebra. Since the future needs of students will vary, emphasis is placed on reasoning and problem solving.

PURPOSE OF THE COURSE
It is intended to satisfy the general education math requirement for degree seeking students, as well as prepare students for subsequent courses such as MTH 181 (Trigonometry), MTH 285 (Calculus for Business and Social Sciences), and MTH 340 (Statistical Methods).

OUTCOMES OF THE COURSE
1. Use linear, rational, quadratic, and absolute value equations to solve word problems.
2. Use graphs to communicate solutions of both equations and inequalities – including linear, quadratic, rational, and absolute value.
3. Understand the graphs of lines, circles, parabolas, rational functions, polynomial functions, absolute value functions, piecewise functions, exponential and logarithmic functions.
4. Work with functions – their domains, ranges and graphs – including composition of functions and inverse functions.
5. Reason and communicate about exponential and logarithmic relationships while exploring real work applications.
6. Solve systems of equations, both linear and nonlinear, in 2 or 3 variables.
7. Use knowledge of arithmetic and geometric sequences and series to interpret real world data.
8. Understand the Binomial Theorem and binomial expansions.

OUTLINE OF THE COURSE
Solving equations and inequalities, applications, functions and the difference quotient, equations of lines and graphing linear equations, circles and parabolas, composition of functions and inverse functions, polynomial and rational functions, exponential and logarithmic functions and equations, systems of equations and inequalities, arithmetic and geometric sequences and series, binomial expansions.