



### Math 138–College Algebra Course Syllabus

**Course description:** Mathematical models; solving equations; creating, interpreting and graphing functions. Particular focus is given to polynomial, exponential and logarithmic functions.

**Credit hours:** 3

**Course Prerequisites and Corequisites:** See general course prerequisites

<b>Course outline:</b>	<u>Approximate time spent</u>
• <b>Making Mathematical Models</b>	10%
• <b>Linear Equations, Functions and Models</b>	20%
o Review of Coordinate Geometry	
o Graphs of Equations	
o Lines and Linear Modeling	
o Systems of Equations	
• <b>Quadratic Equations, Functions and Models</b>	20%
o Graphs of Quadratic Equations	
o Techniques for Solving and Optimizing Quadratic Equations	
o Applications of Quadratic Functions	
• <b>Functions</b>	20%
o Graphs of Functions	
o Algebra of Functions	
o Inverses of Functions	
o Special Functions	
o Polynomial Functions	
o Division of Polynomials and Factorization	
o [Rational Functions]	
• <b>Exponential and Logarithmic Functions and Models</b>	20%
o Exponential Functions	
o Logarithmic Functions	
o Logarithmic Identities and Equations	
o Exponential Equations and Applications	
o Modeling with Exponential and Logarithmic Functions	
• <b>Solving Equations</b>	10%
o Field Properties: Associativity, Commutativity, Identity, Inverses, Distributivity	
o Reviewing Rules for Exponents	
o Incorporating Exponents and Logarithms in the Order of Operations	

**Student Learning Outcomes (SLO):** At the end of MTH 138, a student who has studied and learned the material should be able to:

1. Employ independence of thought in order to obtain solutions to typical algebraic problems. [EEO 1,5]
2. Solve algebraic equations. [EEO 2,5]
3. Demonstrate comprehension of the algebraic properties involved in solving algebraic equations. [EEO 2,5]
4. Read and interpret written mathematics. [EEO 2]
5. Communicate mathematics and logic at a college level. [EEO 3]
6. Use technology to evaluate solutions arrived at mathematically and intelligently interpret the results. [EEO 4]
7. Use functions to model and solve real-world problems. [EEO 1,4]

*There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.*

**Exemplary Educational Objectives (EEO):**

1. To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.