

SYLLABUS  
PART I  
EDISON COMMUNITY COLLEGE  
MTH 122S COLLEGE ALGEBRA  
3 CREDIT HOURS

**COURSE DESCRIPTION**

College algebra course designed to provide a basis for continued study in mathematics or application fields. Topics include: functions and relations and their graphs; algebraic operations on functions; theory of polynomial equations; analysis of rational functions; exponential and logarithmic relationships; systems of equations and inequalities. Prerequisite: satisfactory math assessment score and high school Algebra I, Geometry and Algebra II or a grade of “C” or better in MTH 099D. Lab fee.

**COURSE GOALS**

The student will:

Bloom's Level		Gen Ed Outcomes
4	1. Model real world situations through mathematical relations and functions.	1, 3
3	2. Represent functions verbally, numerically, graphically, and algebraically.	1, 3
2	3. Describe the domain and range of standard mathematical relations and functions.	1, 3
2	4. Describe the concept of a function as a set of ordered pairs or a correspondence between two sets.	1, 3
4	5. Explain graphical differences between relations and relations that are functions.	1, 3
4	6. Analyze points and slope to find the equation of a line.	1, 3
4	7. Model linear equations with slope as the average rate of change.	1, 3
4	8. Analyze the algebraic structure and characteristics of a graph of a function including intercepts, domain, range, and intervals of increase or decrease.	1, 3
5	9. Express transformations and translations of functions both algebraically and graphically.	1, 3
3	10. Apply the basic function operations of addition, subtraction, multiplication, division and composition to real and complex numbers.	1, 3
4	11. Analyze and explain through algebraic and graphical techniques the zeros of polynomial and rational functions.	1, 3
4	12. Analyze and determine symmetry of an equation algebraically and graphically.	1, 3
5	13. Express the meaning of an inverse through ideas connected to algebra and geometry.	1, 3
3	14. Solve linear and quadratic equations algebraically including applications such as interest, geometry, mixtures and distance/time.	1, 3
3	15. Solve quadratic equations by factoring, completing the square and the quadratic formula including those with complex roots.	1, 3
3	16. Solve polynomial equations, radical equations and absolute value equations and inequalities.	1, 3
3	17. Solve linear inequalities algebraically and graphically including applications.	1, 3
3	18. Solve systems of linear equations algebraically and graphically including	1, 3

	applications.	
4	19. Compare and contrast the properties of general functions with those of exponential functions.	1, 3
5	20. Integrate the concept of an inverse relationship in developing the characteristics of a logarithmic function.	1, 3
3	21. Calculate and simplify exponential and logarithmic expressions.	1, 3
3	22. Solve exponential and logarithmic equations including models of growth and decay.	1, 3
5	23. Support problem solving and solution methods by using effective group interactions.	5
3	24. Demonstrate understanding through written laboratory activity reports.	2

### CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce those Core Values whenever appropriate.

### TOPIC OUTLINE

1. Algebraic and graphical problem solving techniques
2. Translations of basic function graphs
3. Basic operations on functional expressions
4. Analysis of polynomial functions
5. Analysis of rational functions
6. Exponential and logarithmic functions