

MAT 171

MAT 171	Precalculus Algebra	3	0	3
Prerequisites:	MAT 080 or MAT 090			
Corequisites:	None			

This is the first of two courses designed to emphasize topics which are fundamental to the study of calculus. Emphasis is placed on equations and inequalities, functions (linear, polynomial, rational), systems of equations and inequalities, and parametric equations. Upon completion, students should be able to solve practical problems and use appropriate models for analysis and predictions.

MAT 171A	Precalculus Algebra Lab	0	2	1
Prerequisites:	MAT 080 or MAT 090			
Corequisites:	MAT 171			

This course is a laboratory for MAT 171. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

COURSE COMPETENCIES

The student should be able to demonstrate the ability to do the following:

1. State the distance, midpoint, slope, slope-intercept, point-slope, and standard form of a circle formulas. Solve selected applied problems using these formulas.
2. Solve applied problems using variation.
3. Add, subtract, multiply, and divide complex numbers.
4. Solve linear, quadratic, absolute value, and rational equations and inequalities both algebraically and graphically.
5. Solve applied problems that can be modeled by linear, quadratic, rational, or polynomial equations.
6. Analyze information pertaining to graphs to determine their algebraic equations.
7. Analyze information and draw conclusions from relations and functions presented in numerical, graphical, and symbolic form.
8. Graph functions by using the techniques of shifting, stretching or compressing, and reflecting.

9. Calculate the sum, difference, product, quotient, and composition of two functions, and find their domains.
10. Decide analytically and graphically if a function has an inverse and if so determine it.
11. Find the solutions of selected polynomial equations of degree greater than two.
12. Graph linear, quadratic, rational, and selected polynomial functions of degree greater than two.
13. Identify matrices and perform operations with them; solve applications that require matrix operations. Identify and evaluate determinants.
14. Solve systems of linear and nonlinear equations and solve selected application problems.
15. Solve systems of linear inequalities and solve selected application problems.
16. Model data with linear and polynomial regression and make predictions using technology.