

MAT 161 COLLEGE ALGEBRA

Prerequisites: MAT 080 or MAT 090
week

Class: 3 hours per

Corequisites: MAT 161A
hours

Credit: 3 semester

COURSE DESCRIPTION

This course provides an integrated approach to the study of algebra, incorporating problem-solving concepts and techniques. Topics include equations and inequalities; polynomial, rational, exponential and logarithmic functions; graphing, modeling and data analysis. Upon completion, students should be able to choose an appropriate mathematical model, algebraic method, and/or technology in order to interpret, analyze and solve applied problems. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics for the Associate in Arts degree.*

COURSE COMPETENCIES

The student will demonstrate the ability to do the following:

1. Solve analytically and/or graphically linear, quadratic, polynomial, rational, other algebraic equations, and systems of equations.
2. Solve analytically and graphically algebraic inequalities.
3. Solve literal equations for specified variables.
4. Find and interpret the slope and intercepts, graph, and write the equations of lines.
5. Identify; evaluate; find the domain, range, intercepts, extreme values and/or asymptotes; and sketch the graphs of selected families of functions.
6. Sketch the graphs of selected functions using the techniques of shifting, stretching, compressing, and reflecting.
7. Use a graphing utility to construct a scatter diagram, analyze real data, find a curve of best fit, and make predictions regarding the data.
8. Analyze the relationship between a function and its inverse.
9. Graph exponential and logarithmic functions; identify the domain, range, intercepts and asymptotes; and describe their relationship.
10. Solve exponential equations, logarithmic equations, and exponential growth and decay problems analytically and graphically.
11. Communicate algebraic ideas using appropriate vocabulary and symbols.
12. Construct models and solutions for real-world applied problems using all of the above concepts, techniques and skills, and appropriate technology. Justify and evaluate the results.

MAT 161A COLLEGE ALGEBRA LAB

Prerequisites: MAT 080 or MAT 090

Lab: 2 hours per week

Corequisites: MAT 161

Credit: 1 semester hour

COURSE DESCRIPTION

This course is a laboratory for MAT 161. Emphasis is on experiences that enhance the concepts presented in class. Upon completion, students should be able to solve problems, apply critical thinking, work collaboratively, and communicate effectively. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.*

COURSE COMPETENCIES

The student will demonstrate the ability to do the following:

1. Learn mathematics through modeling situations from the world around them and use the models to make predictions.
2. Interpret problems algebraically.
3. Employ algebraic techniques to obtain and interpret solutions to applied problems.
4. Communicate algebraic ideas using appropriate vocabulary and symbols.
5. Use appropriate technology to explore ideas and to aid in the solution of algebraic problems.
6. Make connections between algebra and other disciplines.
7. Work effectively and interactively to reinforce the above competencies.