

COURSE PREFIX/NO:     **MAT 102**  
COURSE TITLE:         **Intermediate Algebra**  
LEC HRS/WEEK:        3.0  
LAB HRS/WEEK:        0.0  
CREDIT HRS/SEMESTER 3.0

[Distance Learning Attendance/VA Statement](#)  
[Textbook Information](#)

## **COURSE DESCRIPTION**

This course includes the study of linear systems and applications; quadratic expressions, equations, functions and graphs; and rational and radical expressions and functions.

## **COURSE COMPETENCIES**

### **Module 1: Review of Beginning Algebra Topics**

- Evaluate and simplify algebraic expressions.
- Solve first-degree equations and inequalities in one variable.
- Graph points in a rectangular coordinate system.
- Graph a linear equation in two variables.
- Evaluate a function.
- Find the equation of a line.
- Multiply and divide monomials
- Add, subtract, multiply, and divide polynomials.
- Factor polynomials.

### **Module 2: Systems of Equations and Inequalities**

- Solve systems of equations by graphing, substitution, and addition methods.
- Solve application problems using systems of equations.
- Solve systems of linear inequalities.

### **Module 3: Rational Expressions**

- Find the domain of a rational function.
- Perform algebraic operations on two or more rational expressions and simplify.
- Solve rational equations.
- Solve application problems involving rational equations.
- Solve literal equations.

### **Module 4: Rational Exponents and Radicals**

- Simplify expressions with rational exponents.
- Write exponential expressions as radical expressions and radical expressions as exponential expressions.
- Perform operations on radical expressions and simplify.
- Find the domain of a radical function.
- Solve equations containing radical expressions.
- Perform operations with complex numbers and simplify.

## **Module 5: Quadratic Equations, Algebra of Functions, and Inverse Functions**

- Solve quadratic equations by factoring, by completing the square, and by the quadratic formula.
- Solve equations that are reducible to quadratic equations.
- Solve application problems involving quadratic equations.
- Graph quadratic functions and find vertices, axes of symmetry, and intercepts.
- Perform operations on functions and find compositions of functions.
- Find the inverse of a one-to-one function.

## **ACADEMIC INTEGRITY**

Students are bound by the policies stated in the York Technical College Catalog and Handbook. A student violating these policies will be subject to academic discipline.

## **MINIMAL STANDARDS**

An average of 60% is required for a grade of D for this course. A 70% average is recommended for enrollment in subsequent higher level mathematics courses.

## **EVALUATION STRATEGIES/GRADING**

The final course grade will be determined by a student's performance on the combination of the five module grades plus a final examination. Each module grade may be comprised of objective and/or essay type questions, homework, individual or group projects, quizzes, etc., as required by the instructor. The modules will be evaluated as follows:

Module 1: 10%

Module 2: 10%

Module 3: 20%

Module 4: 20%

Module 5: 20%

The final examination will be evaluated as 20% of the final grade.

### **Grading Scale**

A 90 – 100

B 80 – 89

C 70 – 79

D 60 – 69

F Below 60

## **COURSE REQUIREMENTS**

See the York Technical College Catalog and Handbook for attendance, withdrawal, and student conduct policies.

## **ENTRY- LEVEL SKILLS**

The student entering this course must be competent to perform the following tasks:

- Simplify and evaluate algebraic expressions
- Graph functions, determine domains and ranges of functions, and evaluate functions
- Solve linear equations and applied problems
- Determine slopes, intercepts, and equations of lines
- Add, subtract, multiply, divide, and factor polynomials

**PREREQUISITES** – MAT 101 or equivalent

**CO-REQUISITES** – None

**Disabilities Statement:** Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Special Resources Offices (SR) at 803-327-8007 in the 300 area of Student Services. The SRO coordinates reasonable accommodations for students with documented disabilities.