Course Description
MAT0028 | Developmental Mathematics 2 | 4.00 credits

The student will learn topics which include operations with signed numbers; solving linear equations and inequalities in one variable; operations with polynomials, factoring, integer exponents, radicals, rational expressions, graphing and applications of these topics. This course does not satisfy the college level mathematics requirements. Prerequisite: MAT0018 with a minimum grade of S or Non-demonstration of readiness through placement testing or alternate methods.

Course Competencies:
Competency 1: The student will demonstrate knowledge of signed numbers by:
1. Performing addition, subtraction, multiplication, and division operations with signed numbers
2. Applying the order of operations rule
3. Comparing signed numbers using <, >, ≥, ≤, ≠, or =
4. Determining the absolute values of signed numbers
5. Adding and subtracting absolute values

Competency 2: The student will demonstrate knowledge of equations by:
1. Solving linear equations in one variable
2. Solving linear equations involving fractions and decimals
3. Solving literal equations for a given variable with applications
4. Solving applications involving linear equations in one variable (including number problems, geometry problems, and proportion problems)

Competency 3: The student will demonstrate knowledge of linear inequalities by:
1. Solving linear inequalities in one variable
2. Graphing solutions of linear inequalities on a number line

Competency 4: The student will demonstrate knowledge of algebraic expressions by:
1. Evaluating expressions, given specific values of the variable
2. Identifying and combining like terms
3. Simplifying expressions by applying the order of operations
4. Solving application problems involving geometry, including perimeter and area, with algebraic expressions

Competency 5: The student will demonstrate knowledge of polynomials by:
1. Performing operations with addition, subtraction, multiplication, and division with polynomials
2. Converting numbers to scientific notation and changing from scientific notation to decimal form

Competency 6: The student will demonstrate knowledge of factoring by:
1. Factoring out the most significant common factor
2. Factoring by grouping
3. Factoring trinomials
4. Factoring the difference between two squares
5. Solving quadratic equations in one variable by factoring

Competency 7: The student will demonstrate knowledge of linear equations in two variables by:
1. Graphing linear equations in two variables
2. Determining the slope of a line (from slope formula, graph, and equations)
3. Determining the x-and y-intercepts of a line given the graph of the line or its equation

Competency 8: The student will demonstrate knowledge of rational expressions by:
1. Simplifying a rational expression by factoring

2. Solving problems involving rates and ratios
3. Simplify, multiply, and divide rational expressions
4. Adding and subtracting rational expressions with monomial denominators
5. Converting units of measurement across measurement systems

Competency 9: The student will demonstrate knowledge of radical expressions by:
1. Simplifying radical expressions using the product rule
2. Adding, subtracting, and multiplying radicals
3. Rationalizing the denominator (monomials only)
4. Solving application problems involving geometry (Pythagorean Theorem)

Learning Outcomes:
- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information