Adjunct Instructor of Mathematics

Fall and Spring semester openings for Introductory Algebra courses (MAT 090) on the Rangely residential campus.

This course prepares students for college level math courses.

Pay commiserate with educational background ($1700-$2100/course plus possible enrollment bonus)

Adjunct pay scale and contract

Instructor is required to be present 4 hours per week for classroom instruction, with outside availability to students preferred.

Educational background in Mathematics or related field required. Masters or Doctorate in Mathematics, Math Education, or related field is highly desirable.

Contact Dr. Todd Ward for further information.

Course Description (MAT 090):
Includes first-degree equations, inequalities, formulas, polynomials, factoring polynomials, solving quadratic equations by factoring, coordinate geometry, graphing linear equations and applications. Algebraic fractions and systems of linear equations may be included.

Course Competencies:

I. Demonstrate knowledge and usage of first-degree equations, inequalities and formulas. (I)
II. Demonstrate knowledge and usage of polynomials. (II)
III. Demonstrate knowledge and usage of factoring and solving quadratic equations by factoring. (III)
IV. Demonstrate knowledge and usage of coordinate geometry. (IV)
V. Demonstrate knowledge and usage of algebraic fractions. (V) (Optional)
VI. Demonstrate knowledge and usage of linear systems. (VI) (Optional)

Course Outline:

I. Review prerequisites as needed. (Optional)
II. Demonstrate knowledge and usage of first-degree equations and inequalities
  A. Solve first degree equations including those involving fractions, decimals, ratio, proportion, percent.
  B. Check the solution of first degree equations.
  C. Solve first degree inequalities.
  D. Graph solutions for first degree inequalities.
  E. Define the unknowns when solving a word problem.

F. Translate word problems into algebraic equations or inequalities.
G. Solve word problems and summarize results using a complete sentence.
H. Apply formulas in calculating perimeter/circumference and area of plane geometric figures.
I. Evaluate formulas for given values of the variables.
J. Solve a formula for a specified variable.
K. Solve word problems that apply formulas.

III. Demonstrate knowledge and usage of polynomials.
A. Determine the degree of a polynomial.
B. Add and subtract polynomials.
C. Multiply monomials.
D. Multiply a monomial by a polynomial.
E. Multiply a binomial by another binomial.
F. Divide polynomials by monomials and binomials.
G. Simplify expressions containing positive, zero, and negative exponents.
H. Change notation from standard decimal form to scientific notation and vice versa.
I. Apply scientific notation and properties of exponents to simplify expressions.

IV. Demonstrate knowledge and usage of factoring.
A. Factor out the greatest common monomial factor.
B. Factor the difference of two squares.
C. Factor trinomials of the form x^2 + bx + c.
D. Factor trinomials of the form ax^2 + bx + c.
E. Apply the zero product property to solve quadratic equations.
F. Solve word problems that require quadratic equations.

V. Demonstrate knowledge and usage of coordinate geometry.
A. Graph linear equations and inequalities in two variables using the Cartesian coordinate system.
B. Determine the x and y-intercepts of a linear equation.
C. Determine the slope of a line between two given points.
D. Determine the slope of a line given the equation of a line.
E. Determine if two lines are parallel or perpendicular by their slopes.
F. Determine the equation of a line.
G. Determine the equation of a line that is parallel or perpendicular to a given line and passes through a given point.
H. Write the equation of a line in various formats.
I. Solve and graph applications using one equation with two variables.

VI. Demonstrate knowledge and usage of algebraic fractions. (Optional)
A. Simplify algebraic fractions. (Optional)
B. Add, subtract, multiply, and divide algebraic fractions. (Optional)
C. Solve fractional equations. (Optional)
D. Solve application problems involving algebraic fractions. (Optional)

VII. Demonstrate a knowledge and usage of linear systems. (Optional)

A. Solve systems of linear equations by graphing, the addition method, and the substitution method and identify the system as consistent, inconsistent, or dependent. (Optional)

B. Solve application problems by solving a system of linear equations in two variables. (Optional)