COLLEGE ALGEBRA

MATH 1220

Course Description:

This course presents properties of real numbers, linear equations and graphing, systems of equations, linear inequalities, polynomials, algebraic fractions, exponents, logarithms, and an Introduction to Statistics. This course is designed to prepare students to be successful in MATH 1320 or MATH 1370. Students who have passed MATH 1310 with a C- or better should not take this course. 3 credits

<u>Prerequisites</u>:

Within last two years: ACT Math at least 19, Math SAT at least 460, Math SAT2016 at least 500, Accuplacer score at least 3, MATH 1210 C- or better or MATH 1220 F or better. **Students who have passed MATH 1310 with a C- or better should not take MATH 1220.**

Major Topics:

1) Equations and Inequalities in One Variable

- a. Linear Equations and Inequalities
- b. Lines and Slopes
- c. Parallel and Perpendicular Lines

2) Functions

- a. Relations, Functions, and their Graphs
- b. Graphs of Basic Functions; Piecewise Functions
- c. Transformations of Functions
- d. Composite Functions
- e. One-to-One Functions; Inverse Functions

3) Polynomial Expressions and Functions

- a. Rules of Exponents
- b. Adding, Subtracting, Multiplying, and Dividing Polynomials

4) Quadratic Equations and Functions

- a. Solving Quadratic Equations
- b. Applications and Modeling of Quadratic Functions
- c. The Graphs of Polynomial Functions
- d. Synthetic Division; The Remainder and Factor Theorems
- e. The Zeros of Polynomials

5) Rational Expressions, Equations, and Functions

- a. Adding, Subtracting, Multiplying, and Dividing Rational Expressions
- b. Rational Equations and Models

6) Exponential and Logarithmic Functions and Equations

- a. Exponential Functions and the Natural Exponential Function
- b. Logarithmic Functions and Properties of Logarithms
- c. Exponential and Logarithmic Equations
- d. Applications of Exponential and Logarithmic Functions

7) Systems of Equations

- a. Systems of Linear Equations in Two and Three Variables
- b. Applications of Linear Systems and Problem Solving

8) Introductions to Statistics

- a. Mean, Median, and Mode
- b. Pictographs, Circle Graphs, and Line Graphs
- c. Reading and Constructing Histograms
- d. Using the Fundamental Counting Principle
- e. Estimating and Computing the Probability of an Event

Methods:

Class meets once a week for 75 minutes. In class, the teacher will cover important concepts, work especially difficult problems, and guide students through the work that will be done each week. The teacher will discuss study strategies and help students to avoid common errors. Students are responsible for 3 flexible hours in the Math Lab per week, with Teaching Assistants, using Math Lab software. All homework, quizzes, tests and a cumulative final exam will be done on the UNO Math Lab software.

Student Role:

Students will be expected to attend weekly classes, participate in class, do all homework, quizzes, and tests. Students are responsible each week for 3 flexible hours per week in the Math Lab working with Teaching Assistants doing homework, quizzes, and tests.

Textbook:

College Algebra Class Notes (Packaged with MYMATHLAB Plus Access), Trigstad Packaging

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