

MATH 1320
COLLEGE ALGEBRA
FOR STEM

Course Description:

An advanced algebra course that teaches the following topics: algebraic operations, functions, graphs, linear and quadratic equations and inequalities, polynomial and rational functions, systems of equations, binomial theorem, complex numbers, exponentials, logarithms, sequences, series, and combinatorics. **3 credits**

Prerequisites:

ACT Math at least 23, Math SAT at least 540, or Math SAT2016 at least 570 last 2 years; or Accuplacer score at least 4 last 2 years; or MATH 1220 or MATH 1310 each with C- or better last 2 years; or MATH 1320 last 2 years

Major Topics:

1) Complex Numbers

2) The Rectangular Coordinate System, Lines, and Circles

3) 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

4) Polynomial and Rational Functions

- a. Quadratic Functions
- b. The Graphs of Polynomial Functions
- c. Synthetic Division; The Remainder and Factor Theorems
- d. The Zeros of Polynomial Functions; The Fundamental Theorem of Algebra
- e. Rational Functions and their Graphs

5) 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

6) Systems of Equations and Inequalities

- a. Systems of Linear Equations in Two and Three Variables
- b. Systems of Nonlinear Equations and Inequalities

7) Sequences and Series; Counting and Probability

- a. Introduction to Sequences and Series
- b. Arithmetic and Geometric Sequences and Series
- c. The Binomial Theorem
- d. The Theory of Counting
- e. An Introduction to Probability

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 each week for 3 flexible hours in the Math Lab 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 lab hours 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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