



# Cape Fear

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## COMMUNITY COLLEGE

### Course Outline for MAT 070 INTRODUCTORY ALGEBRA

#### I. CATALOG DESCRIPTION:

**MAT 070 – Introductory Algebra – 4 credit hours (3 contact hours, Hybrid)**

This course establishes a foundation in algebraic concepts and problem solving. Topics include signed numbers, exponents, order of operations, simplifying expressions, solving linear equations and inequalities, graphing, formulas, polynomials, factoring, and elements of geometry. Upon completions, students should be able to apply the above concepts in problem solving using appropriate technology. *A grade of "C" or better is required for satisfactory completion of this course.*

#### II. PREREQUISITE:

- a. Proficiency in Arithmetic - minimum Accuplacer score of 55 on Arithmetic OR a grade of "C" or better in MAT 060
- b. Accuplacer score of 20-54 on Elementary Algebra

#### III. COREQUISITE: RED 080 or ENG 085

#### IV. EXPECTED STUDENT LEARNING OUTCOMES:

Upon completion of the course, students should be able to:

- A. Add, subtract, multiply, and divide real numbers
- B. Apply the laws of integer exponents
- C. Simplify and evaluate expressions
- D. Translate from verbal into numeric, symbolic and graphic forms
- E. Solve linear equations and inequalities (numerically, analytically, and graphically)
- F. Graph equations in one and two variables
- G. Evaluate and solve literal equations
- H. Perform basic operations with polynomials
- I. Factor by the greatest common factor
- J. Factor  $ax^2 + bx + c$
- K. Define and describe the relationships among lines, angles, and geometric figures
- L. Determine the equation of a line
- M. Use appropriate technology

#### V. METHODS OF INSTRUCTION:

- A. Lectures in basic concepts and skills
- B. Read text
- C. Utilize on-line video lectures, assistance aids and text
- D. Class and group discussion of topics

**VI. CONTENT:**

- A. The Real Number System: add, subtract, multiply, and divide real numbers, simplify and evaluate expressions, translate from verbal into numeric, symbolic and graphic forms
- B. Equations Inequalities and Applications: solve linear equations and inequalities (numerically, analytically, and graphically), evaluate and solve literal equations, define and describe the relationships among lines, angles, and geometric figures
- C. Graphs of Linear Equations and Inequalities in Two Variables: graph equations in one and two variables, determine the equation of a line
- D. Exponents and Polynomials: apply the laws of integer exponents, perform basic operations with polynomials
- E. Factoring and Quadratic Application: factor by the greatest common factor, factor  $ax^2 + bx + c$ , factor special products, solve quadratic equations and applications by factoring

**VII. TYPICAL ASSIGNMENTS:**

- A. In class participation during lecture
- B. Online or textbook homework
- C. Online Unit or Chapter Exams

**VIII. EVALUATION:**

- A. Methods of Evaluation
  - 1. Sectional Homework
  - 2. Chapter Tests
  - 3. Comprehensive Final Departmental Examination
  - 4. Portfolio Evaluation or Group Project Presentation
- B. Frequency of Evaluation (typical)
  - 1. Three Sets of 25 Homework exercises per each of the Five Content Areas
  - 2. Five Chapter Tests covering each of the Five Content Areas
  - 3. End-of-Semester Comprehensive Examination

**IX. TYPICAL TEXT:**

- A. ***Introductory Algebra*** Ninth Edition by Lial, Hornsby, and McGinnis; Pearson: Addison Wesley, ISBN 13: 978-0-321-55713-1
  - a. Since the Text is included as part of the on-line portion of this course, it's purchase is optional.
- B. For Internet Sections of this course, the Pearson Education *CourseCompass* system, MathXL/MyMathLab is recommended.

**X. OTHER SUPPLIES REQUIRED OF STUDENTS:**

- A. A scientific or graphing calculator, depending on each student's math curriculum requirements.
- B. A MyMathLab Student Access Code (Bundled with new texts or purchased separately)
- C. It is highly recommended that students in Distance Education sections of the course have internet access.