

# COURSE OUTLINE CHAFFEY COLLEGE

**Discipline:** Mathematics

**1. COURSE IDENTIFICATION:** MATH 426

**2. COURSE TITLE:** Re-Entry Review of Intermediate Algebra

**3. UNITS:** 2

Lecture Hours: Normal: 36 Range: 32 - 38

**4. GRADING:** Pass/No-Pass

**5. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT:** 1

**6. REQUIRED AND/OR RECOMMENDED BACKGROUND:**

Prerequisite(s):

MATH 425 Intermediate Algebra

Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Factor a difference of squares, a trinomial, a polynomial with four or more terms by grouping and a sum or difference of cubes.
Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Solve equations and inequalities in one variable involving absolute values.
Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Perform algebraic operations with rational expressions, radicals, and complex numbers.
Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Simplify expressions containing negative integers and rational exponents.
Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Solve quadratic equations and inequalities, radical equations, fractional equations and inequalities.
Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Solve application problems such as uniform motion, interest, percent mixture, and work using methods of intermediate algebra.
Define intermediate algebra properties and demonstrate their correct usage.	MATH 425 - Determine the equation of a line.

Solve practical application problems involving intermediate algebra.	MATH 425 - Solve application problems such as uniform motion, interest, percent mixture, and work using methods of intermediate algebra.
Demonstrate analytical skills by the solving of logical step-by-step problems.	MATH 425 - Perform algebraic operations with rational expressions, radicals, and complex numbers.
Demonstrate analytical skills by the solving of logical step-by-step problems.	MATH 425 - Solve quadratic equations and inequalities, radical equations, fractional equations and inequalities.
Demonstrate analytical skills by the solving of logical step-by-step problems.	MATH 425 - Solve application problems such as uniform motion, interest, percent mixture, and work using methods of intermediate algebra.

Corequisite(s): None

Advisory: None

Limitation on Enrollment: None

Assessment Level: None

## 7. CATALOG DESCRIPTION:

Review of intermediate algebraic concepts, including: linear equations, inequalities and systems; absolute value equations and inequalities; factoring; rational expressions; exponential and radical expressions; quadratic equations and inequalities; graphing of functions; composition and inverse of functions; matrices and determinants; complex numbers; logarithmic and exponential expressions and equations; sequences and series; binomial theorem; and probability. Course is designed for students returning to mathematics after some absence, who need a comprehensive review of intermediate algebra before continuing with college algebra.

## 8. CONTENT (Scope and Description of Content):

*Order and emphasis of core topics may vary from instructor to instructor.*

- A. Absolute value equations and inequalities.
- B. Factoring techniques.
- C. Nonlinear single-variable inequalities
- D. Rational expressions.
- E. Fractional equations and inequalities.
- F. Negative integer and rational exponents.
- G. Roots, radicals and rational exponents.
- H. Radical equations.
- I. Complex numbers.
- J. Quadratic equations and inequalities.
- K. Linear systems. Matrices. Cramer's Rule.
- L. Applications of linear, fractional, and quadratic equations.
- M. Graphing nonlinear functions.

- N. Conic sections.
- O. Logarithmic and exponential expressions and equations.
- P. Sequences, series, summation notation.
- Q. Binomial Theorem
- R. Combinations and permutations, probability.
- S. Linear equations in two variables.
- T. Functions: composition and inverse.
- U. Nonlinear systems of equations and inequalities.

## 9. OBJECTIVES:

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

- A. Perform intermediate algebra computations by correctly solving problems with respect to: linear equations, inequalities and systems, absolute value equations and inequalities, factoring, rational expressions, exponential and radical expressions, quadratic equations and inequalities, graphing of functions, composition and inverse of functions, matrices and determinants, complex numbers, logarithmic and exponential expressions and equations, sequences, series, binomial theorem, probability.
- B. Define intermediate algebra properties and demonstrate their correct usage.
- C. Solve practical application problems involving intermediate algebra.
- D. Define and use algebraic terms, and translate English into algebraic expressions and equations.
- E. Demonstrate analytical skills by the solving of logical step-by-step problems.

## 10. METHODS OF INSTRUCTION:

*Instructors may employ any of the following instructional methodologies:*

- A. Lecture
- B. Internet instruction
- C. Collaborative Group Work
- D. Skill-building exercises
- E. Small group or directed class discussion
- F. Computer assisted instruction

## 11. OUT-OF-CLASS ASSIGNMENTS:

*The following assignments are representative. Specific assignments will vary from instructor to instructor.*

- A. Reading  
Textbooks, Study guides, Course handouts  
Students may be asked to find, read, and report on a periodical article that employs a two-dimensional graph to illustrate the relationship of two varying measures.
- B. Writing  
Analyses, Reports  
Students may be asked to summarize the definitions, topics, problem types and solution strategies of a given chapter.
- C. Critical Thinking  
Summarizes the problem/question/work assignment, Communicates effectively, Considers the influence of context and assumptions, Analyzes appropriate

supporting data/evidence, Identifies implications and consequences, Applies appropriate tools in problem-solving  
Students may be given practical applications whose solutions involve quadratic equations. They must solve and then determine and explain the actual and extraneous answers.

Students may be given a summary assignment in which they are presented with various expressions to be factored; they are first to state the type of factoring required, and they are then to factor each.

- D. Other  
Computer-assisted modules

## 12. METHODS OF EVALUATION:

*The following evaluation methods are representative. Specific applications will vary from instructor to instructor.*

- A. A grading scale specified in the course syllabus
- B. Application of knowledge/skill
- C. Completion of homework assignments
- D. Objective exams and quizzes - completion
- E. Objective exams and quizzes - matching
- F. Objective exams and quizzes - multiple choice
- G. Objective exams and quizzes - problem solving
- H. Objective exams and quizzes - short answer
- I. Oral exams and quizzes
- J. Participation in classroom discussion
- K. Problem sets
- L. Research projects
- M. A comprehensive final examination shall be required.

## 13. TEXTS AND SUPPORTING REFERENCES:

**Instructors may choose from among the following representative texts**

Texts:

1. Martin-Gay, Elayn. Beginning & Intermediate Algebra. (4th/e). Upper Saddle River, NJ: Pearson/Prentice Hall, 2009.

Supplemental:

1. Johnson, Mildred. How to Solve Word Problems in Algebra. A Solved Problem Approach c/e. (2nd/e). New York: McGraw Hill, 1999.