

Cañada College
Official Course Outline

1. COURSE ID: MATH 110 **TITLE:** Elementary Algebra

Semester Units/Hours: 5.0 units; a minimum of 80.0 lecture hours/semester

Method of Grading: Letter Grade Only

Prerequisite: MATH 811, or appropriate score on District math placement test and other measures as appropriate.

Recommended Preparation:

Eligibility for READ 836 and ENGL 836; or ENGL 847 or ESL 400.

2. COURSE DESIGNATION:

Non-Degree Credit

Basic Skills

Transfer credit: none

3. COURSE DESCRIPTIONS:

Catalog Description:

This is the first course in a 2-part series covering elementary and intermediate algebra. Topics include the real number system, linear equations, linear inequalities, graphing, systems of equations, integer exponents, polynomials, factoring, proportions, rational expressions, and problem solving. Students who complete this course with a C or better are advised to enroll in MATH 120.

Schedule of Classes Description

This is a course in elementary algebra covering linear, polynomial, and rational expressions and equations.

4. STUDENT LEARNING OUTCOME(S) (SLO'S):

Upon successful completion of this course, a student will meet the following outcomes:

- A. 2. Simplify polynomials, and rational expressions. a. Use appropriate techniques to multiply, divide, add, and subtract polynomials and rational expressions. b. Simplify expressions with integer exponents.
- B. 1. Solve linear algebraic equations and inequalities that model a given application. a. Translate a statement into an appropriate one-variable linear equation or inequality. b. Use appropriate strategies to find the solutions. c. Model and solve word problems whose solutions require formulating one variable linear equations.
- C. 3. Construct and analyze a linear graph in a Cartesian coordinate system. a. Use different methods to graph a two-variable linear equation. b. Interpret the graph.
- D. 5. Solve a two by two system of linear equations. a. Identify the different types of systems and their graphical interpretations. b. Use different methods to solve a system of two linear equations.
- E. 4. Construct and solve quadratic and rational equations to model a given application. a. Apply factoring techniques to solve quadratic equations. b. Use appropriate methods to solve rational equations. c. Verify that solutions comply with any constraints in the model. d. Model and solve word problems whose solutions require formulating one variable quadratic or rational equations.

5. SPECIFIC INSTRUCTIONAL OBJECTIVES:

Upon successful completion of this course, a student will be able to:

- A. Use a number line to order real numbers.
- B. Find the absolute value of real numbers.
- C. Manipulate and perform basic operations on real numbers, including fractions and decimals.
- D. Define and use exponents and the order of operations.
- E. Evaluate algebraic expressions, given replacement values for variables.
- F. Identify and use the properties of real numbers.
- G. Simplify algebraic expressions.
- H. Solve linear equations.
 - I. Translate word phrases and sentences into algebraic expressions and equations.
 - J. Solve word problems involving linear equations.
- K. Solve linear inequalities.
- L. Graph solutions sets and use interval notation.
- M. Read and interpret bar and line graphs.
- N. Graph linear equations.
- O. Identify intercepts of a linear equation.

- P. Solve systems of linear equations.
- Q. Solve word problems involving systems of linear equations.
- R. Manipulate and evaluate exponential expressions.
- S. Define and identify polynomials.
- T. Manipulate and perform basic operations on polynomials.
- U. Factor polynomials.
- V. Solve equations containing polynomials
- W. Solve word problems involving rational equations.
- X. Define and identify rational expressions.
- Y. Manipulate and perform basic operations on rational expressions.
- A@. Solve equations containing rational expressions.
- AA. Solve word problems involving rational equations.

6. COURSE CONTENT:

Lecture Content:

1. Real numbers and their properties
 - Symbols and sets of numbers
 - Operations of real numbers
 - Properties of real numbers
2. Linear equations
 - Simplifying expressions
 - Solving equations
 - Applications of equations
3. Graphs
 - Reading graphs
 - The rectangular coordinate system
 - Graphing linear equations
4. Systems of linear equations
 - Solve systems by graphing
 - Solve systems by addition and substitution methods
 - Applications to systems
5. Polynomials
 - Exponents
 - Adding and subtracting polynomials
 - Multiplying polynomials
 - Dividing polynomials
6. Factoring polynomials
 - Greatest common factor
 - Factoring by grouping
 - Factoring trinomials
 - Factoring binomials
 - Quadratic equations
7. Rational Functions
 - Simplifying rational expressions
 - Multiplying and dividing rational expressions
 - Adding and subtracting rational expressions
 - Solving equations containing rational expressions
 - Proportion and problem solving with rational expressions

Lab Content:

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TBA Hours Content:

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7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

Writing Assignments:

Explain the difference between an expression and an equation.

Reading Assignments:

One to three sections of the textbook per week.

Other Outside Assignments:

None.

To be Arranged Assignments (if applicable):

Not applicable.

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Class Work
- B. Exams/Tests
- C. Home Work
- D. Quizzes
- E. Other special assignments such as journals, projects, and worksheets.

10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

- A. Lehmann, Jay. *Elementary Algebra: Graphs and Authentic Applications*, ed. USA: Prentice Hall, 2008
- B. Martin-Gay, Elayn. *Beginning and Intermediate Algebra*, ed. Upper Saddle River, New Jersey: Prentice Hall, 2008

Origination Date: August 2011

Curriculum Committee Approval Date: September 2011

Effective Term: Fall 2011

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