

**Cañada College**  
**Official Course Outline**

1. **COURSE ID:** MATH 112    **TITLE:** Elementary Algebra II  
**Semester Units/Hours:** 3.0 units; a minimum of 48.0 lecture hours/semester  
**Method of Grading:** Letter Grade Only  
**Prerequisite:** MATH 111,  
**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 course is equivalent to the second half of MATH 110 and is a continuation of MATH 111. Topics include integer exponents, polynomials, factoring, proportions, and rational expressions. Students who complete this course with a C or better are advised to enroll in MATH 122.

**Schedule of Classes Description**

Continuation of MATH 111. Covers exponents, polynomials, factoring, and rational expressions.

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

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

- A. 1. 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. 3. 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.
- C. 2. 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. Manipulate and evaluate exponential expressions.
- B. Define and identify polynomials.
- C. Manipulate and perform basic operations on polynomials.
- D. Factor polynomials.
- E. Solve equations containing polynomials
- F. Solve word problems involving rational equations.
- G. Define and identify rational expressions.
- H. Manipulate and perform basic operations on rational expressions.
- I. Solve equations containing rational expressions.
- J. Solve word problems involving rational equations.

6. **COURSE CONTENT:**

**Lecture Content:**

- 1. Polynomials
  - Exponents
  - Adding and subtracting polynomials
  - Multiplying polynomials
- 2. Dividing polynomials
  - Factoring polynomials
  - Greatest common factor
  - Factoring by grouping
  - Factoring trinomials
  - Factoring binomials

- Quadratic equations
3. 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. Exams/Tests
- B. Home Work
- C. Quizzes
- D. Other special assignments such as journals, projects, and worksheets.

**10. REPRESENTATIVE TEXT(S):**

Possible textbooks include:

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

**Origination Date:** August 2011

**Curriculum Committee Approval Date:** September 2011

**Effective Term:** Fall 2011

**Course Originator:** Denise Hum