

**College of San Mateo**  
**Official Course Outline**

1. **COURSE ID:** MATH 111    **TITLE:** Elementary Algebra I

**Units:** 3.0 units    **Hours/Semester:** 48.0-54.0 Lecture hours

**Method of Grading:** Letter Grade Only

**Prerequisite:** Appropriate score on the College Placement Test or MATH 811 or MATH 802

**Recommended Preparation:**

concurrent enrollment in READ 830.

2. **COURSE DESIGNATION:**

**Non-Degree Credit**

**Transfer credit:** none

3. **COURSE DESCRIPTIONS:**

**Catalog Description:**

First half of a study of elementary algebra including introduction to: signed number operations, order of operations, linear equations and inequalities in one and two variables, systems of linear equations, exponents.

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

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

1. Identify and apply basic algebraic concepts including slope, absolute value, scientific notation, equivalent equations, laws of exponents, intercepts, horizontal lines, and vertical lines.
2. Solve systems of linear equations in two unknowns using graphing, elimination, and substitution.
3. Solve equations and inequalities in one variable.
4. Graph linear equations.
5. Find the equations of lines.
6. Solve Problems by application of linear functions.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**

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

1. Identify and apply basic algebraic concepts including slope, absolute value, scientific notation, equivalent equations, laws of exponents, intercepts, horizontal lines, and vertical lines.
2. Solve systems of linear equations in two unknowns using graphing, elimination, and substitution.
3. Solve equations and inequalities in one variable.
4. Graph linear equations
5. Find the equations of lines.
6. Solve problems by application of linear functions.

6. **COURSE CONTENT:**

**Lecture Content:**

1. Signed number operations and order of operations
2. Linear Equations and Inequalities
  - A. Solving one-step equations
  - B. Solving two-step equations
  - C. Solving multi-step equations
  - D. Formulas
  - E. Applications
3. Linear Equations and Inequalities in Two Variables
  - A. Graphing points
  - B. Graphing linear equations in two variables
  - C. Intercepts
  - D. Slope
  - E. Slope-intercept method
  - F. Finding the equation of a line
  - G. Graphing linear inequalities in two variables (optional)
4. Systems of Linear Equations
  - A. Graphing

- B. Elimination
  - C. Substitution
  - D. Applications
5. Exponents and Polynomials
- A. Multiplication and division with exponents

**7. REPRESENTATIVE METHODS OF INSTRUCTION:**

Typical methods of instruction may include:

- A. Lecture
- B. Activity
- C. Discussion
- D. Observation and Demonstration
- E. Other (Specify): Lecture/discussion to understand problem-solving process, students will practice critical thinking in small group problem solving, students will evaluate proposed solutions in light of constraints of the problem.

**8. REPRESENTATIVE ASSIGNMENTS**

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

**Writing Assignments:**

Students will submit written homework assignments. Students may be assigned papers including mathematical modeling.

**Reading Assignments:**

Instructor will assign text readings for discussion of a topic in class.

**Other Outside Assignments:**

Students will need to complete assigned problems and projects.

**9. REPRESENTATIVE METHODS OF EVALUATION**

Representative methods of evaluation may include:

- A. Class Participation
- B. Exams/Tests
- C. Group Projects
- D. Homework
- E. Quizzes
- F. a. Written individual assignments and/or journal - to demonstrate individual student progress toward objectives. b. Small group presentations - to demonstrate student participation in problem solving process c. Written exams/quizzes - to reflect student knowledge of vocabulary, concepts, and application of concepts to problem-solving as presented in lectures and discussion, small group sessions, and text readings. d. Final Examination - to reflect student knowledge of vocabulary, concepts, and applications of concepts to problem solving as presented in lectures and discussions, small group sessions, and text readings. e. Participation - to reflect student involvement in class discussions, small group sessions and presentations, etc.

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

Possible textbooks include:

- A. McKeague, C. P.. *Introductory Algebra*, ed. XYZ Textbooks, 2010
- B. Lenman, J.. *Introductory Algebra: Graphs and Authentic Applications*, ed. Pearson, 2015
- C. Bittinger, M., Ellenbogen, D.. *Elementary algebra, Concepts and Applications*, ed. Pearson, 2010

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**Course Originator:** Cheryl Gregory