

College of San Mateo
Official Course Outline

1. **COURSE ID:** MATH 802 **TITLE:** Preparation for Algebra

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

Method of Grading: Grade Option (Letter Grade or P/NP)

Prerequisite: MATH 811

Recommended Preparation:

Completion of or concurrent enrollment in Read 825.

2. **COURSE DESIGNATION:**

Non-Degree Credit

Transfer credit: none

3. **COURSE DESCRIPTIONS:**

Catalog Description:

Designed for students who have a solid foundation in arithmetic skills but need to develop pre-algebra skills before taking a first developmental algebra course. Intended to serve as a bridge between Arithmetic review and Elementary algebra. Topics include: quick review and practice in fundamental arithmetic skills, operations involving signed numbers, variables and variable expressions, simple linear equations and their graphs, measurements, exponents, introduction to polynomials, and some practical applications. (Units do not apply toward AA/AS degree.)

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

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

1. Identify and know when to apply arithmetic and pre-algebra concepts.
2. Solve problems by application of pre-algebra principles.
3. Represent problems in written language, in symbolic form, and in graphical form.
4. Select and apply appropriate formulas.
5. Organize work in a logical, clearly stated order, correctly using mathematical symbols and language.
6. Use calculators effectively and appropriately.
7. State solutions to application problems in the context of the problem and recognize inappropriate and/or impossible answers.
8. Follow and demonstrate understanding of mathematical exposition (text readings, handouts, and lectures.)
9. Recognize the usefulness of elementary mathematics.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**

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

1. Strengthen core entry skills, which are 1. Operations with whole numbers 2. Operations with fractions 3. Operations with decimals 4. Operations with percentages
2. Perform operations on integers.
3. Simplify and evaluate variable expressions.
4. Solve a one variable first degree modeling problem situation.
5. Construct linear graphs.
6. Convert units of measure(includes American and Metric systems).
7. Perform operations with polynomials

6. **COURSE CONTENT:**

Lecture Content:

1. Whole numbers-addition, subtraction, rounding, multiplication, division, exponents, order of operations, greatest common factor, least common multiple, factorization, divisibility, problem solving with whole numbers
2. Fractions-equivalent fractions, multiplication, division, addition, subtraction, mixed numerals, order of operations, problem solving with fractions
3. Decimals-order, rounding, addition, subtraction, multiplication, division, conversion to and from fractions, percent notation, conversion to and from percents, solving problems with percent and decimals, square roots, approximations with square roots of non-squares.
4. Integers-addition, subtraction, multiplication, division, simplifying algebraic expressions
5. Equations-addition property of equality, multiplication property of equality, linear equations in one

variable, applications, evaluating formulas, paired data, the rectangular coordinate system, graphing straight lines

6. Measurement-unit analysis: length, area and volume, weight, converting between the two systems, operations with mixed units

7. Exponents and polynomials (an introduction)-multiplication of monomials, multiplication of a polynomial by a constant, addition of polynomials.

7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

- A. Other (Specify): a. Out-of-class assignments: students will need to complete assigned problems and projects. b. Reading assignments: Instructor will assign text readings for discussion of a topic in class c. Writing assignments: Students will submit written homework assignments. d. Critical thinking: 1. Lecture discussion to understand problem-solving process 2. Students will practice critical thinking in small group problem solving. e. Resources available on WebAccess and the internet may be used to augment the text.

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, including selected exercises from text, test corrections, and study skills assignments.

Reading Assignments:

Instructor will assign text readings for discussion of a topic in class. Some outside readings may be assigned.

Other Outside Assignments:

Supplementary materials may be posted on WebAccess or made available in the Math Resource Center.

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Exams/Tests
B. Homework
C. Quizzes
D. a. Written individual assignments and/ or journals-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, Charles P.. *Basic Mathematics with Early Integers*, 1 ed. San Luis Obispo, CA: XYZ Textbooks, 2011

Origination Date: August 2010

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Course Originator: Cheryl Gregory